Canadian Journal of
PUBLIC HEALTH

VOLUME 38 TORONTO, APRIL, 1947 NUMBER 4

The Challenge of Psychiatry in 1947

LESLIE R. ANGUS, B.A., M.D.
Director of Psychiatric Services
The Devereux Schools
Devon, Pennsylvania *Santa Barbara, California*

PSYCHIATRY as a specialty is so closely associated in general thought with mental hospitals that the two ideas are almost synonymous. While this concept is not completely correct, as witnessed for example by the number of psychiatrists in private practice, in industry, educational institutions and, outstandingly in recent years, in the armed forces, in a certain broad sense it is true; and inasmuch as the limitations of time and space will not allow coverage of the entire field, for the purpose of present discussion it will be assumed that if hospital psychiatry is not the whole of psychiatry, at least it is a fairly accurate barometer by which the progress of psychiatry as a whole may be judged and some predictions made as to its future.

Psychological medicine, by which is meant the effort to understand and treat diseases as problems of living human beings, rather than a set of pathological phenomena existing in detached and insensible organisms, is, of course, as old as medicine itself, and always has been practised by good physicians. In the year 1403 the first three mentally ill patients were admitted to the Bethlem Hospital in London, England, and since that time there has been a consistent effort to deal with so-called mental conditions in institutions specially adapted to their care. It is true that, at first, methods were crude and sometimes cruel, and it is true that Pinel in 1791 found it necessary to release some of his patients from confinement in dark cellars and to remove the shackles that in many instances fastened them to the walls. On this side of the Atlantic the work of Dorothea Lynde Dix in the middle of the last century, and Clifford Beers who inaugurated the mental-hygiene movement in 1908, helped to put the care of the mentally ill patient on a humane basis, and more recently it has developed on the level of a

Presented at the annual meeting of District 5, Registered Nurses Association of Ontario, held in the Royal York Hotel, Toronto, on February 17, 1947.

regular branch of medicine. Psychiatry to-day is drawing closer to the other specialties in demanding not only good care for its patients, but thorough investigation, the best in laboratory facilities and that co-operation with the other specialties which is the hallmark of good medicine in all its branches. It has been recognized for years that the really effective practitioner must be a good student of the psyche, and now at long last it is being realized that the good psychiatrist is fundamentally a good physician.

A fresh public interest in mental hospitals has arisen since World War II, stimulated by the large number of neuropsychiatric cases discovered in the induction examinations, and in the armed forces themselves, which has brought to a sharp focus the need for taking stock of the available resources to see whether they are adequate to meet the present or the probable future needs. According to much-quoted estimates, one person in every twenty of the population will spend some time in a mental hospital and it has been stated by responsible authorities that at least 10,000 more psychiatrists are urgently needed to meet the expected incidence of mental illness in the next few years. Already the Veterans Administrations are finding psychiatric casualties one of their greatest problems, and hospital facilities are being strained to the limit to care for the mounting admissions. In the Province of Ontario there has been an increasing census in mental hospitals every year since 1930. In 1944, the last year for which the figures are available, there were nearly 16,000 patients on the books of the Ontario Hospitals, or one and one-half times as many as those listed in 1930. According to the Dominion Bureau of Statistics, the year 1944 had the highest number of admissions in a fourteen-year period, and there were on December 31, 1944, 51,776 patients carried on the books for a normal bed capacity of 42,500.

These figures, revealing as they do the fact that our facilities are actually overcrowded, tell less than half the story. The other major problem is that the staffs of most mental hospitals are seriously depleted. Dr. Thomas Parran, Chief of the U.S. Public Health Service, is the authority for the statement that there is one hospital in that country in which there is only one physician to 700 patients and in another there are three registered nurses for 5,000 patients. In Canada, on the average, there was in 1944 one doctor to each 228 patients and one trained nurse for each 54. Even on this basis there are at present 350 vacancies for registered nurses in the mental-hospital system, and the nursing deficiency is listed as 46.2 per cent as compared with 14.5 per cent in the general hospitals. Such conditions, of course, result in somewhat less than ideal treatment, and they result, too, in the popular agitations like that started by the Mental Hygiene Society of Ohio which recently bulked so large in the illustrated magazines and in books like "The Snake Pit". Both types of criticism, by unduly emphasizing some of the inadequacies of hospital treatment, tend to produce the impression that recovery from a mental illness is something in the nature of a miracle which occurs only to the fortunate few.

Actually the picture is very different. In 1944, 7,897 patients were discharged from mental hospitals in the Dominion of Canada. Of those, 75.6 per cent were either recovered or definitely improved, and even if we figure our

statistics on the basis of the year's admission rate of 9,170, 65.3 per cent of the cases were in those categories. Thus even during the years the armed forces were demanding, and very properly receiving, the cream of our available staffs, when materials for construction and maintenance were non-existent and when to expect new equipment was only wishful thinking, our mental hospitals were not only carrying on but were discharging as useful citizens approximately two-thirds of their admissions during the year. Many of these, before the newer methods of treatment were put into effect, would have been regarded as hopeless.

Consider, for example, the case of Mr. J. J., a formerly brisk and successful business man of 45, who three months before his admission to a mental hospital began to show a change of disposition. Always shrewd, accurate and cautious, it was observed that he was making mistakes in simple transactions and that his judgment was becoming unreliable. A little later he became argumentative and irritable, readily involved in quarrels with his associates, and was so careless of his personal appearance and habits that his family became concerned, had him examined, and on the advice of their physician, hospitalized. On arrival at the hospital he talked in a grandiose manner of his fortunes, made startling and unjustifiably optimistic plans for the future and gave gratuities of thousands of imaginary dollars for every small service proffered. If we were to look at him closely, we should see that his facial expression has a peculiar ironed-out, vacant quality; his speech is slurred and he has difficulty in pronouncing many words. More detailed observation will show that the pupils of his eyes are irregular and unequal and that they react poorly, if at all, to light and accommodation. Laboratory examination of his spinal fluid will show a characteristic chemical reaction, and if we could study microscopically a section of his brain, we should find present the spirochetes of syphilis. Another patient with the same physical and laboratory findings may present as a first symptom a convulsion or an attack of unconsciousness; in others the delusions, instead of being those of grandeur, may be intensely depressive and nihilistic. One fairly common idea is the belief expressed by the patient that he is dead, that his heart has stopped beating, and that his flesh is rotting from his bones. In spite of the wide variety of symptoms, all of these patients are suffering from general paresis, a disease which accounts for about 10 per cent of mental-hospital admissions.

Not so long ago it was an absolute certainty that such a person had only a very few years or even months to live and that all that time would be spent within the walls of an institution. Now he will be inoculated with malaria or exposed to one of the artificial methods of heat production, and his chances of returning to useful life are at least one in three, with an additional chance of one to three that he will be appreciably better. This is one of the older achievements of the past few years. With the use of penicillin in the early treatment of syphilis, it is not impossible that general paresis will become a vanishing disease.

About 25 per cent of the admissions to mental hospitals suffer from dementia praecox or schizophrenia. The condition—or perhaps more accurately, this group of conditions—is a mysterious ailment, almost analogous in psychiatry to cancer in general medicine. The outlook for spontaneous recovery is almost as hopeless in one as in the other; but the patient, instead of dying physically, dies

mentally, often surviving his shattered intellectual faculties by a considerable number of years. Worst of all, most of those affected are young, occasionally in their teens, very often in their twenties or thirties. A fairly typical instance is the young matron who, after the birth of her child, begins to be disinterested in it and its care. She may neglect it to the point at which its life is endangered, or she may actually attempt to do it bodily harm. In conversation she is vague and apparently abstracted, and diligent inquiry often reveals that she is involved in detached and abstruse speculations. Sooner or later there emerge ideas of reference—someone is influencing her mind, and making her think strange thoughts which she recognizes as foreign, but cannot stop nor control. Often hallucinations of one or more of the sensory fields occur. The patient may hear her enemies plotting against her or her friends giving her good advice; she may see her persecutors at their nefarious work, or may be on intimate terms with God or Satan, conversing with the absolute certainty of one who sees and hears his interlocutor; more rarely odors, usually obnoxious as of poison gas or of burning brimstone, add reality to the picture. These ideas may be projected into her brain by some machine, as in the case of one patient who used to telephone her doctor every night at two or three o'clock to ask, "Were you asleep? I hope so, because I want you to know just what it feels like to have someone work on your mind. Now will you please turn off that machine right away and let me go to sleep, and I'll let you go back to bed, too." When this failed to get the desired results, she began to write letters to the police, the legislators, the governor, and finally to the President, urging that the annoyance be stopped. On one ocasion she burst into a waiting-room full of patients to denounce the psychiatrist, and on another brought a supply of stones which she hurled through the office windows. A brief period of hospitalization, terminated against the doctor's advice, accomplished little and after her release her feelings of persecution were only intensified. She would telephone from wherever she might be at any hour, at first begging and pleading for relief, later threatening further reprisals. Dramatically enough, the end occurred during one of these calls when she became so angry and excited that she developed a cerebral hemorrhage and died in the telephone booth. This case is from the files of some years ago and one may well ask, "Would the story have been different if the illness had occurred in 1947?" We cannot say with certainty, but we know that in a modern hospital she would have been given one of the forms of shock therapy now in use—insulin, metrazol, or electro-shock, and that the chances are at least good that her condition would have been alleviated. We can say with assurance that that is exactly what has happened in the cases of thousands of others whose symptoms have been as bad as hers or worse.

Then there are the men and women in whom depression is an outstanding symptom, who are readily recognized, even before they speak, by their slow gait, their despondent posture and their downcast expression. Some of them are young, but more of middle or late middle age. Some, instead of sitting quietly or walking slowly, are pacing about in a very fever of restless energy, tramping aimlessly to and fro or wringing their hands. In conversation they are apt to be slow and dull, or alternatively querulous and repetitive, but the topic is always

the same, the hopelessness of the world in general and of their own situation in particular. Those who are agitated will frequently have an explanation of their despondency—it was some action of theirs performed some years ago and forgotten till recently which is to blame. If they could only live that experience over, they would act differently and all would be well. It is interesting to observe in this regard that, like fashions in clothes, fashions in delusions change with the times. Not so many years ago the patient's usual explanation for his difficulty was the commission of the "unpardonable sin" and psychiatrists used to argue just as heatedly, though perhaps not so learnedly, about its exact nature as theologians do today. Whether we have become more emancipated in these years, or whether we have become merely moral backsliders, is a philosophical question outside the scope of the present discussion, but the tendency now is towards blaming a defalcation in the income tax, or a customs evasion, rather than an offended Diety. Patients of this type always have been the source of sleepless nights for those who were responsible in any way for their welfare. Far too often the depression mushrooms from a general dissatisfaction with life to a conclusion that life is not worth living, and from there to a determination either to end an existence which is unendurable in itself or to destroy themselves as the only adequate atonement for their heinous crimes. Since the logical faculties are usually practically unimpaired, considerable ingenuity is often exercised to elude the vigilance of their protectors and to put their plans into effect. Suicides have not infrequently been accomplished with such implements as a tiny sliver surreptitiously stolen when a drinking glass has been broken and the pieces supposedly carefully gathered up by the nurses. The fragment may be skillfully concealed for days till a favorable opportunity occurs to use it effectively. Here again the outlook has changed radically during the past decade. Glandular therapies are often helpful and are constantly improving, but the real change has been brought about in this group, too, by the use of shock therapy, and in some cases by the newer method of brain surgery. In the so-called involutional depressions, the former prognosis was of many months' hospitalization and even then only a 50-50 chance of recovery. Now it is startling to see the change wrought in some instances in an agitated and intensely suicidal patient by a single application of electro-shock. Seven or eight treatments not infrequently produce complete remissions, and a person who might have killed himself, or might never have left hospital, now is often restored to his family in a few weeks.

The so-called psychosurgery, or prefrontal lobotomy, is another method which has accomplished apparent miracles. Usually reserved for severe cases which seem to be intractable to other methods, the procedure consists in introducing through two trephine holes in the frontal region of the skull a blunt dissector which is moved to and fro in the brain to cut and destroy the associative tracts which are believed to carry the impulses which cause mental pain. While the technique requires a high degree of skill and knowledge, it is by no means a difficult operation in the sense usually employed in brain surgery and is already in fairly wide use.

On the investigative side, a great advance has been made in the use of the electroencephalograph, which permits records to be made of the action currents in

the brain with no more inconvenience to the patient than attends the taking of the standard electrocardiograph. Principally used at the moment to detect epilepsy and to locate brain tumors, research activities are speeding its practical employment in the diagnosis and in the regulating of the treatment of mental illness in general.

These rather striking examples are mentioned particularly, not only as an evidence of the advances made in psychiatry but also to point out the fact that every one of these methods, as well as many of the forms of drug therapy (particularly the intravenous medications popularized by the newspapers as "truth serums"), obviously require for their successful administration the assistance and co-operation of medically trained personnel and the teamwork between physician and nurse that invariably characterizes good medicine. There is, too, a natural tendency to regard the mechanical agent—the heat, or the electricity, or the surgical procedure—as the complete treatment. General medicine has repeatedly experienced such phases when some new drug is discovered. It is confidently expected that the medicine will prove so specific that it is merely a matter of making a correct diagnosis and administering a proper dose of the drug to insure a prompt response and then amazing differences in results begin to be reported. So in psychiatry, some physicians and some clinics obtain far more favorable responses than others who use exactly the same mechanical methods. The essential difference lies not in the patient, not in the details of procedure, but in the physician himself. It cannot be repeated too often that, as long as we are dealing with human beings, the personal equation is often the deciding factor and is always important. By and large, better results have been obtained by those who have used the electricity or the surgery as an instrument for making it possible to really contact the patient than by others who feel that their duty has been done when they have pressed an electric switch or completed an operation. It is, therefore, not only as a competent nursing assistant in the accepted sense that the psychiatric nurse aids in the treatment of mental illness; coupled with technical dexterity there must be a trained and sympathetic understanding, a skill in the ability to instill confidence and hope, and a willingness to really work with the patient. Thus the good psychiatric nurse is not merely a means of carrying out a treatment, she is a therapeutic agent in herself. In one private hospital in which statistics were kept, it was found that the employment of a private nurse in many cases was a sound investment and that the money spent by the patient for her services was more than saved in the shortening of the expected hospitalization. It would be a Utopian dream to imagine universal individual care to the extent of a special nurse for each acutely ill mental patient. Only a visionary would entertain for a moment such an impractical ideal even in private hospitals, and above all it is not to be expected in State-supported institutions where the cost of maintenance of a patient is to be held, as it has been for many years in English-speaking North America, at approximately one dollar a day. Actually during 1944 the Province of Ontario spent $1.0879 daily on each patient in their mental hospitals, though the expense to the taxpayer was reduced to 71.59 cents per day by reason of the productive work accomplished by the patient. There is, however, no insurmountable reason for regarding these

figures as immutable, and if the costs in other fields of medicine be used as a standard, there is every indication that they must be revised upwards. It is somewhat startling to discover that, at the moment, the money spent for a patient in a public general hospital is from six to ten times that which would be required for the same patient if he were in a public mental hospital. It is an astounding commentary on the public attitude to read that in the United States one hundred dollars is spent on research alone for each case of poliomyelitis as contrasted with twenty-five cents for similar work in each case of mental illness. Actually only one per cent of the money used for the mentally ill is devoted to the investigation of the causes of mental disease, despite the fact that hospital walls are bulging to accommodate increasing demands for treatment and that mental disease is one of our greatest economic burdens. Would it not be a sound business venture (to put the matter merely in terms of dollars and cents) to allocate more funds for research and investigation and more for equipment and personnel? This would, of course, increase the daily cost of treatment, but would presumably more than justify itself by shortening the period of hospitalization. For the patient, the family and the State it is not the daily cost, but the total cost of an illness which counts. On a budget of approximately one dollar per day per patient, public mental hospitals have been expected to provide for their patients board, room, clothing, entertainment, medications, treatments and high-grade medical care, and they have done amazingly well. The remarkable feature is not that they have on occasion failed to meet the highest standards, but that they have succeeded so frequently in doing constructive therapy. In May 1946 at the annual meeting of the American Psychiatric Association, which has a wide membership in Canada and has Canadian representation on its Council, an official statement was issued recognizing this situation and pointing out that not one dollar per day, but five was the minimum for which adequate treatment for acute cases of mental illness could be expected. If the rates of reputable private hospitals operated not for profit are any criterion, the figure would be closer to ten dollars per day, but even this would be money well spent if it resulted in better treatment and in more and speedier recoveries.

It may be argued, and with justice, that there are certain types of chronic mental illness, of which those associated with senility or arteriosclerosis are the best examples, in which extra expense on this scale would bring little or no return in terms of an earlier return to the community. The answer given by the American Psychiatric Association is that a minimum of two dollars and fifty cents per day, or one half of that advocated for the acute cases, is a proper amount to secure scientific care for this group. Preferably, wards or whole hospitals should be established for the care of chronic cases, while other units, distinctly separated, would be kept more actively staffed for the pursuit of vigorous and progressive therapy. Such a plan has the merit of being more realistic and would not, by mixing chronic and acute cases, deprive the hopeful cases amongst the latter of the great opportunities which are available in modern psychiatric techniques.

Cynical observers have remarked rather sarcastically on numerous occasions that there are more mentally ill people outside mental hospitals than in them.

Unlike many popular witticisms, this particular statement has a definite foundation in fact, if we can accept the statistics of the United States Public Health Service. According to these figures, at the moment eight million Americans, or about 6 per cent of the population, are suffering from some sort of mental illness, and while over half of all beds available for all kinds of disease are in use for patients with mental illness, there are only about 600,000 in all the mental hospitals in the country. If we can adapt these figures to the situation in Ontario, it would mean that while there are approximately 16,000 in hospitals at the moment, there are in the Province at least 120,000 persons needing some kind of treatment. Some of these are frankly psychotic, but by far the greater number belong to what we call the neuroses, or the even more poorly defined maladjustments which the present chaotic times seem to produce so plentifully. They include not only those with the type of vague physical complaints which defy the skill of the most competent internist, but the unduly worried, anxious, indecisive unsettled people who find it impossible to stay in a locality or a job, and who constitute a problem to themselves, their families and their employers. Private physicians and public clinics see many of these cases and the results obtained by therapy tend to substantiate the belief that while early treatment is effective, such conditions if neglected tend to progress to the more serious states which require hospitalization. Undoubtedly more can be accomplished as more of these cases come for treatment in the earliest stages, but an even more fundamental aspect of the problem lies in the fact that far too often the cause of the maladjustment can be traced directly to faulty training in the impressionable years of childhood. For years, as a sort of compensation for the restrictions of some of our own childhoods, we have been stressing the so-called "rights" of the individual to express himself, often without regard to the rights and privileges of others. We piously guard our children against "frustration" and against the so-called moral sanctions which have built up our civilization to its present position. As a corollary, we are providing more and more protection, prolonging childhood irresponsibility to a later and later age, and encouraging its continuance with all sorts of paternalistic legislation to enable the prudent and the imprudent, the provident and the improvident alike, to have a carefree and comfortable existence. Is it any wonder that in these circumstances young people see no reason why they should concern themselves with self-discipline and training? Why should the modern child try to make the difficult adjustments that are necessary if one is to be a useful member of our complex society when there is so little incentive? And is it really surprising that when circumstances bring this immature individual face to face in adolescence or later with situations that will not yield merely to gratify his wishes and with problems that cannot be swept away with a wave of father's hand, he becomes bewildered and may retreat into neurotic behavior? In the United States 12 per cent of all men examined for service in World War II under the Universal Draft Law were found to have neuropsychiatric disorders, and 37 per cent of those rejected were excluded for this cause. The diagnosis made on over half of these 1,750,000 men was either that of psychopathic personality or psychoneurosis. Such statistics, which probably could be duplicated in Canada, give some evidence of the magnitude of the

problem to be solved and, almost without exception, those who have studied it agree that the solution lies in a change in our methods of child-training.

There are those who suggest that the answer is to be found in the removal of all social conventions and the eradication of all morals, but surely even when bolstered with philosophical rationalization and psuedo-scientific theorizing, which can be twisted so easily to support any argument, this is but a specious answer. When in industry a product fails to stand up in service, the wise manufacturer does not meet the situation by establishing less rigid specifications; what we need in life is surely not fewer and lower standards, but a better observance of those that have stood the test of time. For far too long we have been encouraging youth to believe that when they get into difficulties, it is the world and not they that is responsible. We have promulgated the doctrines of soul-searching as a substitute for the effort of soul-saving through hard work. Life, we are told, is no longer to be regarded as a race or a battle, but as a social event on a large scale; the preparation for it has changed correspondingly from a course of rigorous training and toughening to a series of lectures on deportment and etiquette. Surely it is high time to return to the realization that the rights and privileges are acquired by merit and not as a gift from the gods; that the development of character by effort is not an anachronism, and that the Golden Rule has not yet been repealed. "If the youth of to-day is to avoid the maladjustments of the past", wrote Dr. Robert Seliger in a recent article, "they must be given a sounder view of life. The knowledge must be impressed upon them that they live in a universe which is larger than they are, and that family ties, love, duty and faith are more worth while than selfish personal satisfaction or what the fashion of the moment calls success." Not in less idealism, but in more is the hope for youth to-day.

It is precisely in this field of the problems of youth that psychiatry in the year 1947 has its greatest opportunity and greatest responsibility. Certainly it is not our duty as psychiatrists to attempt to reform our educational institutions in the matters of academic training nor to interfere as long as the pupil is adequately adjusted, but it is our responsibility to give those children and adolescents the best of care when they fall ill and to help them to avoid a serious illness by proper care in the incipient stages. It is here that we have failed and failed badly. Perhaps we have not properly appreciated the problem, though every front-page story of "juvenile delinquency" dins it in our ears, and the increasing admission rate of young people to the regular mental hospitals makes it inescapable. This is not at all the old problem of feeblemindedness or mental deficiency; the group we are discussing are not only normal, but frequently highly superior in intelligence, and their difficulties arise from psychiatric conflicts and emotional stresses quite as definitely as in the cases of their seniors, though there is with this group the advantage that since most of the illness is of short duration and since their personalities are generally more plastic, it is usually easier to treat them. At the moment such children are cared for in the offices of private practitioners and in public clinics set up for out-patient care, but if the child requires more extensive supervision, he is sent either to a mental hospital designed for adults, or to a so-called training-school for the feebleminded. In either case

he acquires, during his impressionable years, mental attitudes which may well influence unfavourably the rest of his life, and in neither does he receive any real academic training. Thus handicapped both emotionally and intellectually, he emerges from his illness to try to take his place in a world that has long since passed him by. Only too obviously there is a crying need for special hospitals for these early cases of mental illness, and yet in the United States and Canada there is not one single unit of this particular type. In two States plans are being made for the establishment of such centres, but so far they are only on paper and not yet translated into terms of buildings and staffs. Such a step requires courageous thinking and a fresh approach. Physically the hospitals should be completely separated both from institutions for the feebleminded and the adult psychiatric hospitals. They must have not only the best in psychological and psychiatric diagnostic equipment and the best in treatment facilities, but a fully developed academic program, thoroughly integrated with the schools in the community so that the patients can progress readily into the regular educational system with as little interruption in their careers as possible. It is apparent that this plan will call for State participation, not only to aid in its development, but because the expense involved is so great that private enterprise and even private foundations cannot hope to carry the burden. Yet, up to the moment the only work which has been done has been undertaken in one or two private schools in which a psychiatric staff attempts to handle the problems with limited facilities.

During the discussion of the achievements of psychiatry in the past few years, and the attempts to outline its present position and future responsibilities, there have been numerous references to the need for more and more workers. These references are not accidental, but deliberately intended to bring attention to a situation which is serious and if continued may well lead to a loss of all that has been so laboriously accomplished. The need for personnel is acute and immediate. On the average, the psychiatric hospitals of Canada are understaffed with nurses to the extent of 46.2 per cent and often the real situations are much worse; to cite only one case, the superintendent in one of the largest Ontario Hospitals reports in his latest official statement that he had available only one-quarter of the physicians and one-quarter of the trained nurses required to operate efficiently. There has been appalling indifference to these conditions, not only among the public, but in the medical and nursing professions as well. Ontario is exceptionally fortunate in having had, for a number of years, three excellent training centres connected with the Ontario Hospitals in London, Kingston, and Toronto, while a fourth was added in New Toronto in January of this year. Yet of the 1,200 third-year nursing students only 230 have had any psychiatric affiliations and less than half of the accredited nursing schools provide any such opportunity. If the whole 230 went at once into the hospitals on graduation, they would not fill the 350 actual vacancies for graduate nurses in mental hospitals in Canada and undoubtedly many more than this latter number could be used effectively if they were available.

It is one of the laws of history that some way will be found to meet human needs that are sufficiently pressing. So far the emergency has been met by the hundreds of willing workers from the laity who, motivated by a desire to help

sick people get well, have contributed their enthusiasm and interest. With instruction and supervision by medically trained staff members, there are many duties which they can perform effectively, and undoubtedly they will continue to help where their services have proved so valuable. No one who has worked with these volunteers, or has seen them in action, would have anything but the highest praise for their conscientious and devoted efforts, and no disparagement is implied in pointing out that when they become substitutes for trained nurses instead of assistants to them their employment can mean nothing less than a decline in the quality of medical care. No matter how we may try to evade the unpleasant fact, the treatment of sick patients by professionally untrained persons is a step backward, but it is a step that is a very definite possibility and perhaps even a certainty unless we of the medical and nursing professions assume our proper responsibility. Whether we like it or not, under present conditions the direction of medical treatment in psychiatry is slipping from our hands and this may be our last chance to take our proper place as leaders in a medical field rather than as followers. As professional people trained to think in terms of human illness, we must not fail this essential task. Each one of us can think and talk in terms of the present problems; some of us can act. It is a time of unlimited opportunity and of great responsibility, for what psychiatry will become in 1947 depends in a large measure on how the nursing profession meets this challenge.

Rates of Stillbirths in Canada

H. LUKIN ROBINSON
Vital Statistics Branch
Dominion Bureau of Statistics
Ottawa, Canada

TWO well-known and generally accepted statistical indexes of a people's health are the expectation of life at birth and the rate of infant mortality. Judged by these indexes, the health of the Canadian people is roughly in proportion to her standard of living; compared with the great majority of the people of the world, it is good. This does not mean, however, that it is as good as it could be. Neither is our standard of living as high as it could be. Everyone realizes that there is room for a great deal of improvement.

The rate of stillbirths may also be regarded as a statistical index of a people's health. It is closely connected with the rate of infant mortality. Indeed the dividing line between the two is more a matter of definition, and of judgment by the physician in each case, than of a fundamental difference in their nature.

Vital statistics can be considered from three different points of view:

First, from the medical point of view. For example, we analyse mortality by cause of death. In the case of stillbirths, a great deal of work has been done on the problem of their medical classification, and an experimental draft of a "Manual of the Classification of Causes of Stillbirth for Canada" was published last year by the Dominion Bureau of Statistics.

Second, from what we may call, for want of a better word, the demographic point of view. The most important demographic factors in vital statistics are sex, age and marital status. In the case of stillbirths, the order of birth of the child is also of great importance.

Third, from the social point of view, or rather from the point of view of the economic and social conditions involved. Whether a community is rural or urban, the size of the urban centre, occupation, income, employment, housing conditions, public health facilities and services, education and so on —all play some part in the vital statistics of a population. Some of them undoubtedly influence the rate of stillbirths.

It is from the second point of view that the rate of stillbirths will be considered here. My purpose will be to show the effect on stillbirth rates of the sex, legitimacy and order of birth of the child, and of the age of the mother.

The paper consists mainly of a series of tables and charts, with the text limited as much as possible to comment on the salient points. There is little

Presented before the Vital Statistics Section at the thirty-fourth annual meeting of the Canadian Public Health Association, held in the Royal York Hotel, Toronto, May 6-8, 1946, in conjunction with the annual meeting of the Ontario Health Officers Association.

that is startling or unexpected in the results which are presented. But they do aim to provide a precise measurement of an important factor in the growth of the population. Stillbirths in Canada at present constitute about 2.5 per cent of the total number of births, and about 30 per cent of the total loss of life under one year of age. The former percentage is decreasing, the latter is increasing.

For statistical purposes, a stillbirth is defined as the birth of a foetus after 28 weeks or 6½ months of pregnancy, in which no breathing occurs after complete birth. This is the definition adopted by the Dominion Bureau of Statistics in 1932. Before 1932 the minimum period of gestation was 6 months. Consequently, the figures of stillbirths for 1926-31 are not strictly comparable with those for 1932 and after; they would be somewhat higher. There is no evidence, as far as I know, to suggest that the registration of stillbirths has been less complete than that of live births.

It has been the practice in Canada to calculate rates of stillbirths as a proportion of the number of live births. In a number of other countries, however, rates are calculated as a proportion of the total number of births, including stillbirths. This method is preferable, and is in accordance with the normal definition given by the theory of probability. It shows the actual number of stillbirths as a proportion of the number who have survived the risk and are no longer exposed to it. It is thus comparable to all other mortality rates, except maternal mortality, where a change should no doubt also be made. All rates of stillbirths in this article have been calculated per 1,000 total births, and hence are slightly lower than those found in Canadian vital statistics publications.

Table I shows the rate of stillbirths in Canada from 1926-'44. Chart 1 illustrates the same information, together with the rate of infant mortality during the first week of life.

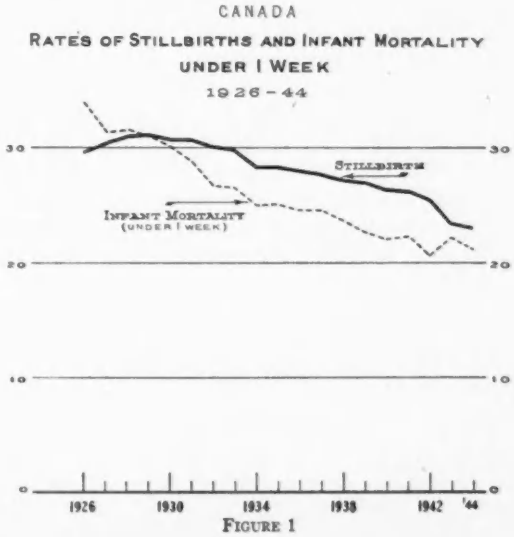

FIGURE 1

TABLE I

RATES OF STILLBIRTHS IN CANADA, 1926-44, PER 1,000 TOTAL BIRTHS

Year	Rate	Year	Rate
1926	29.6	1936	28.0
1927	30.4	1937	27.7
1928	31.0	1938	27.2
1929	31.1	1939	27.0
1930	30.7	1940	26.4
1931	30.7	1941	26.2
1932	30.0	1942	25.5
1933	2 .8	1943	23.4
1934	28.3	1944	23.0
1935	28.3		

From 1926 to '29, the rate of stillbirths rose slightly. From then on it has been falling slowly but steadily, in recent years rather faster than before. The fall in the rate of infant mortality during the first week of life has, however, been greater than that of the rate of stillbirths.

It is well known that the rates of infant mortality during the first month of life have been falling less than the rates for the later months. Table II compares the fall in these rates with the fall in the rate of stillbirths.

TABLE II

COMPARATIVE DECLINE OF STILLBIRTH AND INFANT MORTALITY RATES IN CANADA, 1927-30 TO 1940-43

	1927-30	1940-43	% Decline
Rate of Stillbirths (per 1,000 total birth)	**30.8**	**25.3**	18.0
Infant Mortality			
a) Under 1 Day (per 1,000 live births	**16.5**	**11.2**	31.9
(b 1 Day-1 Week (per 1,000 children 1 day of age)	**14.7**	**10.7**	27.6
(c) 1 Week-1 Month (per 1,000 children 1 week of age)	**13.2**	**7.9**	40.3
(d) 1-4 Months (per 1,000 children 1 month of age)	**23.6**	**14.0**	40.5
(e) 4-8 Months (per 1,000 children 4 months of age)	**16.4**	**8.8**	46.5
(f) 8-12 Months (per 1,000 children 8 months of age)	**10.5**	**4.9**	53.5
Mortality Rate during 2nd Year of Life (per 1 000 children 12 months of age)	**15.1**	**6.5**	56.9

From 1927-30 to 1940-43, the rate of stillbirths fell by 18 per cent. In contrast, the rate of mortality during the second year of life fell by 57 per cent over the same period; that is, by three times as much. With one exception, the longer the period of life during the first two years, the greater has been the fall in the mortality rate. In the case of stillbirths, where the period of life is zero, the fall in the rate has been least.

It would seem that once it has reached the reasonably low level observed in a number of modern "western" countries, the rate of stillbirths is one which the progress of medical science and public health finds most difficult to attack successfully. In this respect, it is similar to the rates of mortality in the advanced ages of life. In the one case, however, the life span is cut short before it has started; in the other, it is brought to an end after a full course. From the point of view of the size and growth of the population, as well as from many others, the difference is fundamental.

Rates of Stillbirths by Sex

Chart 2 shows rates of stillbirths by sex in Canada from 1926 to '44. Table III summarizes the main points.

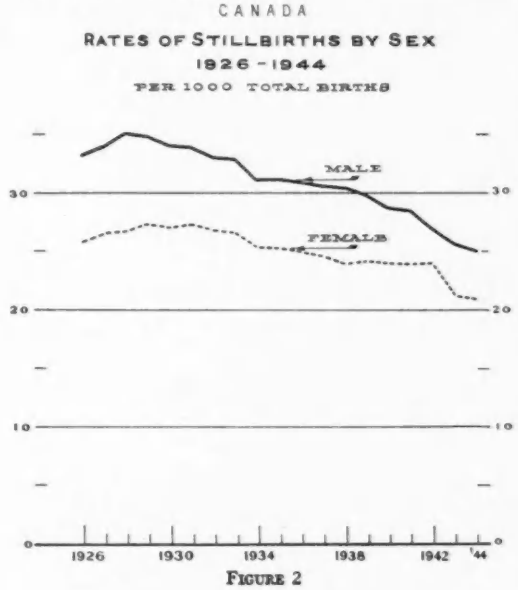

FIGURE 2

TABLE III

STILLBIRTH AND INFANT MORTALITY RATES IN CANADA, BY SEX
1927-30, 1933-37 AND 1940-43

	Male	Female	Male Rate as a % of Female Rate
Rate of Stillbirths (per 1,000 total births)..			
1927-30	34.6	26.9	128
1933-37	31.3	25.4	123
1940-43	27.4	23.2	118
% Decline, 1927-30 to 1940-43	20.9	13.8	
Infant Mortality			
(a) Under 1 Day (per 1,000 live births)			
1927-30	18.7	14.2	131
1933-37	14.0	10.5	133
1940-43	12.9	9.5	135
% Decline, 1927-30 to 1940-43	31.1	33.1	
(b) 1 Day-1 Week per 1,000 children 1 day of age)			
1927-30	16.4	13.0	126
1933-37	14.9	11.2	132
1940-43	12.1	9.1	133
% Decline, 1927-30 to 1940-43	26.1	29.6	
(c) 1 Week-1 Month (per 1,000 children 1 week of age)			
1927-30	14.6	11.7	125
1933-37	11.3	8.8	129
1940-43	8.6	7.0	122
% Decline, 1927-30 to 1940-43	41.1	39.7	
(d) 1-12 Months (per 1,000 children 1 month of age			
1927-30	54.7	44.4	123
1933-37	42.0	33.6	125
1940-43	30.5	24.7	123
% Decline, 1927-30 to 1940-43	44.3	44.3	

First, the rate of stillbirths for male children is throughout higher than the rate for female children.

Second, the ratio of the rate of stillbirths for male children to the rate for female children is much lower than formerly. In 1927-30, the rate for male children was 28 per cent higher than the rate for female children; in 1940-43, it was only 18 per cent higher. As a corollary, the rate of stillbirths for male children has fallen more than the rate for female children. The former fell by 21 per cent from 1927-30 to 1940-43; the latter fell only by 14 per cent. This greater relative fall of the rate of male stillbirths, which is also observed in most European countries, is one of the most interesting aspects of the study of stillbirth rates. As the rate of stillbirths falls, the ratio of the rates of male to female stillbirths will generally be found to fall also.*

Third, the ratio of the rates of male and female stillbirths is lower than the corresponding ratios of the rates of infant mortality, especially than the ratios of the rates for the first week of life, which are 35 and 33 per cent higher for male than for female children. The ratio of the rates of infant mortality seems also to be more stable than the ratio of the rates of stillbirths. Hence, also, the relative fall of the rates of infant mortality has been more nearly equal for the two sexes.

Male children are said to be generally larger and more active in childbirth than female children. That is no doubt why, according to experimental unpublished figures of the causes of stillbirths in 1943 and '44 compiled by the Dominion Bureau of Statistics, the rates of male stillbirths from such causes as "placental and cord conditions," "birth injury" and "difficult labour" are higher than the female rates. At the same time, to a layman it does not seem unreasonable to suppose that it has been easier to deal with these causes, to reduce them as a result of improved obstetrics and expanded public health facilities (principally hospitalization and pre-natal care), than to reduce those causes more closely related to basically abnormal or deficient conditions in the mother. A greater decline in the rates from these causes than in the rates from causes which equally affect both sexes would explain at least in part the greatly reduced ratio of the rates of male to female stillbirths.

Legitimacy

As is to be expected, the rate of illegitimate stillbirths is a good deal higher than the rate of legitimate stillbirths. Chart 3 shows these rates from 1926 to '44, and Table IV summarizes the main points.

**In his article "Sex Differences in Infant Mortality," published in the Canadian Public Health Journal for May 1933, Dr. J. Wyllie established the following relationship between exponential equations of the curves of male and female stillbirths: $B_m = cB_f^h$, where h and c are constants. He showed that "when $h > 1$, the relative decline of the stillbirth ratio in the male sex is greater than in the female sex."*

Dr. Wyllie's exponential equations described concave curves. Taking straight-line equations to represent the curves of Chart 2, the relationship between the equations is of the form: $B_m = cB_f + h$. When $h < 0$, the relative decline of the rate of male stillbirths is greater than that of the female rate. By least squares, the equations were found to be:

$$B_m = 31.02 - 0.511x \text{ and}$$
$$B_f = 25.08 - 0.294x;$$

and the relationship between them was:

$$B_m = 1.74\, B_f - 12.6.$$

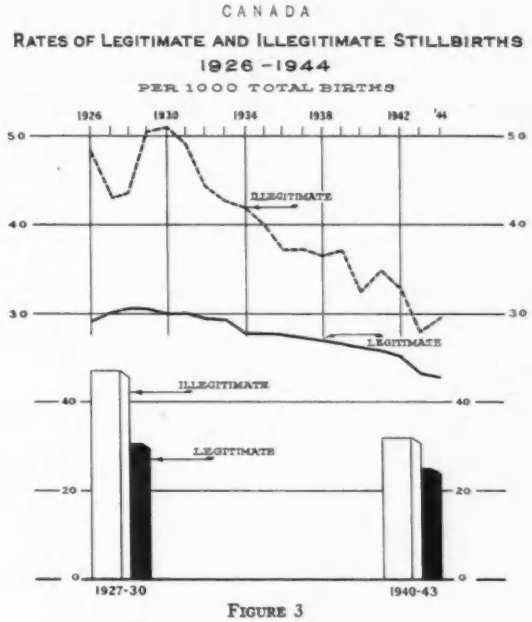

FIGURE 3

TABLE IV

RATES OF LEGITIMATE AND ILLEGITIMATE STILLBIRTHS, 1927-30, 1933-37 AND 1940-43

	Legitimate	Illegitimate	Illegitimate Rate as a % of Legitimate Rate
Rates of Stillbirths per 1,000 total births)			
1927-30	30.3	47.3	156
1933-37	28.0	39.8	142
1940-43	25.1	31.9	127
% Decline, 1927-30 to 1940-43	17.2	32.6	

In 1927-30 the rate of illegitimate stillbirths was 56 per cent higher than the legitimate rate; and in 1940-43 it was 27 per cent higher. From 1927-30 to 1940-43, the rate of illegitimate stillbirths fell by twice as much as the legitimate rate—33 per cent compared with 17 per cent. The excess of the rate of illegitimate over legitimate stillbirths was thus cut in half. This shows, I think, that the social barriers to the proper pre-natal and natal care of illegitimate children have been breaking down. A more sensible and sympathetic treatment of illegitimacy is surely desirable. It is, after all, not the fault of the child that its parents are not married, and it is well known to public health officials and social welfare agencies that, given equal opportunities, illegitimate children become as good citizens as legitimate children.

The true relationship between the rates of illegitimate and legitimate stillbirths is actually less favourable than it appears to be here. Compared

to legitimate births, illegitimate births are proportionately much more numerous among younger mothers, where in any case the rates of stillbirths are lower. Because of the great difference between the rates of legitimate and illegitimate stillbirths, a proper analysis of stillbirths by age of the mother and order of birth of the child requires that legitimate and illegitimate births be taken separately. The following four sections therefore deal with rates of *legitimate* stillbirths only.

Rates of Legitimate Stillbirths by Age of the Mother

Table V analyses the rates of legitimate stillbirths by age of the mother in the two periods 1927-30 and 1940-43. Chart 4 illustrates the rates of Table V.

TABLE V

RATES OF LEGITIMATE STILLBIRTHS BY AGE OF THE MOTHER, 1927-30 AND 1940-43

Age	1927-30		1940-43		% Decline
	Rate	Index	Rate	Index	
All Ages	30.3	100	25.1	100	17.2
Under 20	27.3	90	19.5	78	28.6
20-24	24.7	82	19.6	78	20.6
25-29	25.8	85	22.2	88	14.0
30-34	29.7	98	26.9	107	9.4
35-39	7.8	125	35.1	140	7.1
40-44	50.4	166	45.7	182	9.
45 +	65.	216	61.2	244	6.6

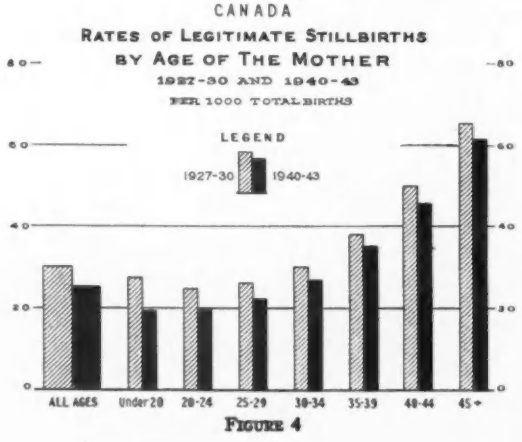

FIGURE 4

The age of the mother appears strikingly as a decisive factor affecting the rate of stillbirths. In 1927-30, the lowest rate was for the age group 20-24 years; in 1940-43 it was the same for both age-groups under 25 years. The lowest rates were about 80 per cent of the general rate for all age groups. The rate then rises steeply as the age of the mother increases beyond 30 years, so that for mothers 45 years of age and over it becomes well over twice

as high as the general rate. For mothers 45 years of age and over the rate of stillbirths is thus *three times as high* as the rate for the youngest age groups.

As a second point, Table V shows that the fall in the rates has been proportionately smaller as the age of the mother increases. The general rate for all ages fell by 17 per cent from 1927-30 to 1940-43. For the two youngest age-groups the fall was 29 per cent and 21 per cent respectively; for the two oldest age-groups, where the rates are highest, the fall was least, namely, 9 per cent and 7 per cent respectively.

By Order of Birth of the Child

The next decisive factor affecting the rate of stillbirths is the order of birth of the child. Table VI analyses the rates of legitimate stillbirths by order of birth in the two periods, and Chart 5 illustrates these rates.

TABLE VI

RATE OF LEGITIMATE STILLBIRTHS, BY ORDER OF BIRTH OF THE CHILD, 1927-30 AND 1940-43

Order of Birth	1927-30		1940-43		% Decrease
	Rate	Index	Rate	Index	
All Orders	30.3	100	25.1	100	17.2
1st Births	38.6	127	28.9	115	25.1
2nd	22.9	76	18.3	73	20.1
3rd	24.8	82	19.3	77	22.2
4th	25.2	83	22.4	89	11.1
5th	27.2	90	23.8	95	12.5
6th and 7th	30.1	99	28.5	114	5.3
8th and 9th	32.4	107	31.5	125	2.8
10th-12th	36.9	122	37.7	150	+ 2.2
13th-15th	40.4	133	44.8	178	+ 10.9
16th+	51.4	170	62.7	250	+ 22.0

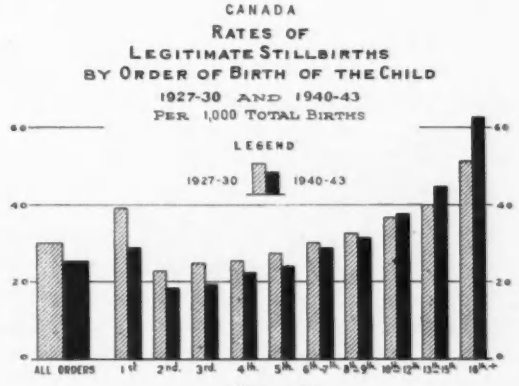

FIGURE 5

The rate of stillbirths for 1st-born children is higher than the general rate for all orders of birth taken together. In 1927-30 it was 27 per cent higher and in 1940-43 it was 15 per cent higher. Though the fall in the rate of still-

births has been considerable, the risk of stillbirth among 1st-born children remains high. This is particularly important in view of the large and increasing proportion which 1st births constitute of the total.

From 2nd births on, the rate rises steeply as the order of births increases. The lowest rate is that for 2nd births, which is about 75 per cent of the rate for all orders; the highest rate is that for 16th births and over, which was 170 per cent of the rate for all orders in 1927-30 and 250 per cent of the rate in 1940-43. The highest rate is thus between *two and a half and three and a half times as high* as the lowest rate. In general the rates for 2nd to 5th births are below the rate for all orders, and the rates for 1st births and for 6th births and over are above the rate for all orders.

As with the age of the mother, the fall of the rates of stillbirths has been proportionately less as the order of birth increases. In fact, from the 10th births on, the rates have actually increased. What are the possible reasons for this increase?

Perhaps they may be found in the depression and in the consequent exhaustion from hardship and worry of mothers of large families. It is well known that there are many more large families among the less well-to-do groups of the population, and these also are the groups whom the depression hit most severely. If this suggestion is correct, then a more general conclusion follows. If the depression raised the rates of stillbirths, then economic and social conditions generally must play their part in determining the rates among different groups. Large families, as has been said, are concentrated mainly among those whose economic and social status is relatively low. The difference in the average income per caput of large families is even more marked. No doubt, then, these unfavourable conditions will be found, upon further study, to explain in part the great rise in the rate of stillbirths as the order of birth increases.

The distributions of births by the age of the mother and by the order of birth of the child are naturally closely correlated. It is only rarely that 10th children and over, say, are born to mothers less than 30 years old, and the number of 1st and 2nd children born to mothers 40 years and over is also very small. It follows that the rise in the rate of stillbirths as the order of birth increases is partly due to the accompanying rise in the age of the mother, and vice versa. A more detailed analysis requires that the two factors be studied separately.

By Age of the Mother and Order of Birth of the Child

In this section, the rates of legitimate stillbirths by age of the mother for given orders of birth will be briefly analysed, and in the next section the rates by order of birth for given age-groups. To bring out the main characteristics of the variations of the rates, it is necessary to show only two or three tables from each cross-classification.

It has been suggested above that the most important rate of stillbirths is that for 1st-born children; it deserves particular attention. Table VII analyses the rates of legitimate stillbirths for 1st births by age of the mother. Chart 6 illustrates these rates.

TABLE VII

RATES OF LEGITIMATE STILLBIRTHS, FOR FIRST BIRTHS, BY AGE OF THE MOTHER, 1927-30 AND 1940-43

Age	1927-30		1940-43		% Decline
	Rate	Ind x	Rate	Index	
All Ages	**38.6**	100	**28.9**	100	25.1
Under 20	**28.4**	74	**20.0**	69	29.6
20-24	**32.0**	83	**23.5**	81	26.6
25-29	**42.9**	111	**30.9**	107	28.0
30-34	**57.4**	149	**43.4**	150	24.4
35-39	**82.7**	214	**61.3**	212	25.9
40 +	**105.0**	272	**77.4**	268	26.3

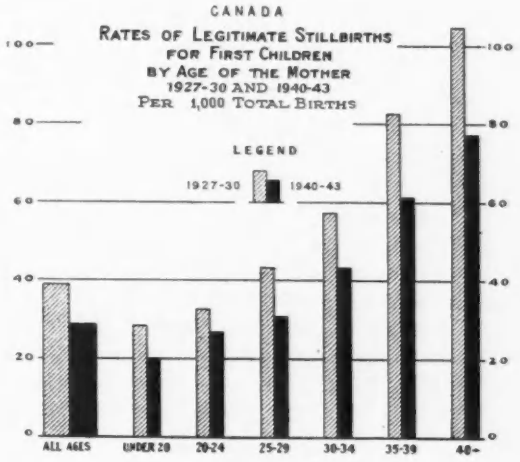

FIGURE 6

The table shows that for 1st births the increase in the rate of stillbirths with the age of the mother is greater than when all orders are taken together. The rate for the youngest age-group is here only about 70 per cent of the rate for all ages, and the rate for mothers 40 years and over is more than 250 per cent of the rate for all ages. Thus, for 1st births, the rate of stillbirths in the oldest age-group is *four times as high* as in the youngest age-group. For all orders of birth taken together, it was only three times as high.

Another difference is that for 1st births only the rates for the two age-groups below 25 years are lower than the rate for all ages; when all orders of birth are taken together, the dividing line is at 30 years.

A third and striking difference is that for 1st births the fall in the rates has been proportionately about equal for all age-groups, namely, between 25 and 30 per cent. For 1st-born children to mothers 40 years and over, the improvement in the rate of stillbirths has been as great as that among 1st born to mothers below 35 years.

Table VIII analyses the rates of legitimate stillbirths, for 4th and 5th births, by the age of the mother. Table IX analyses the rates for 10th births and over.

TABLE VIII

RATES OF LEGITIMATE STILLBIRTHS, FOR 4TH AND 5TH BIRTHS, BY AGE OF THE MOTHER, 1927-30 AND 1940-43

Age	1927-30		1940-43		% Decline
	Rate	Index	Rate	Index	
All Ages	**26.1**	100	**23.0**	100	11.9
Under 25	**21.9**	84	**20.2**	91	7.6
25-29	**19.9**	76	**18.1**	79	9.0
30-34	**26.0**	100	**22.5**	98	13.5
35-39	**35.9**	138	**31.3**	136	12.8
40 +	**54.9**	210	**46.0**	200	16.2

TABLE IX

RATES OF LEGITIMATE STILLBIRTHS, FOR 10TH BIRTHS AND OVER, BY AGE OF THE MOTHER, 1927-30 AND 1940-43

Age	1927-30		1940-43		% Increase
	Rate	Index	Rate	Index	
All Ages	**38.7**	100	**41.0**	100	5.9
Under 35	**32.9**	85	**36.0**	88	9.5
35-39	**33.6**	87	**38.2**	93	13.7
40-44	**45.0**	116	**44.2**	108	− 1.8
45 +	**61.1**	158	**61.0**	148	− 0.2

From these tables, we see that as the order of birth increases, the variation of the rates with the ages of the mother becomes smaller. For 4th and 5th births, the rate in the highest age-group—mothers 40 years and over—is about *two and a half times as high* as the rate in the age-group 25-29 years. For 10 births and over, the rate in the highest age-group—mothers 45 years and over—is between *one and a half times and twice as high* as the rate in the youngest age-group—in this case mothers under 35 years. This is partly due to the smaller range in the age of the mother. As the order of birth increases, the range in the age of the mother is naturally reduced. In Table VII, there were six age-groups, in Table VIII there were five, and in Table IX only four.

Secondly, the rate of stillbirths for the 4th and 5th children fell by 12 per cent from 1927-30 to 1940-43. The rate for 10th children and over *increased* by 6 per cent. Moreover, the fall in the rates for 4th and 5th births has been proportionately *greater* in the upper age-groups of mothers, and for 10th births and over, the *increase* in the rate has been in the younger age-groups; for mothers 40 years and over there was a very slight fall in the rate.

There is here an apparent contradiction. For all orders of birth taken together, Table V showed that the fall in the rates has been proportionately smaller as the age of the mother increases. When the orders of birth are taken separately, however, Table VII shows that for 1st births the fall in the rates was proportionately about equal for all age-groups, and for the higher orders there was either a proportionately greater fall or a proportionately smaller increase in the upper age-groups of mothers. The explanation of this contradiction lies in the association of the age of the mother and the order of birth

of the child, and the relative fall in the rates of stillbirths for the different *orders of birth*. This second point will be discussed in the next section.

Rates of Legitimate Stillbirths by Order of Birth for Given Age-Groups of Mothers

Table X analyses the rates by order of birth of the child to mothers 25-29 years of age. Table XI analyses the rates for mothers 40 years and over; Chart 7 illustrates the rates of Table XI.

TABLE X

RATES OF LEGITIMATE STILLBIRTHS TO MOTHERS 25-29 YEARS OF AGE, BY ORDER OF BIRTH OF THE CHILD, 1927-30 AND 1940-43

Order of Birth	1927-30		40-43		% De rease
	Rate	Index	Rate	Index	
All Orders	25.8	100	22.2	100	14.0
1st Births	42.9	166	30.9	139	30.0
2nd	22.8	88	17.4	78	23.7
3rd	21.5	83	18.2	82	15.3
4th	19.3	75	18.1	82	6.2
5th	20.6	80	18.1	82	12.1
6th and 7th	20.8	81	21.2	96	−1.9
8th-15th+	27.3	106	28.6	129	−4.8

TABLE XI

RATES OF LEGITIMATE STILLBIRTHS, TO MOTHERS 40 YEARS OF AGE AND OVER, BY ORDER OF BIRTH OF THE CHILD, 1927-30 AND 1940-43

Order o Birth	1927-30		1940-43		% Decrease
	Rate	Index	Rate	Index	
All Orders	51.9	100	47.2	100	9.1
1st Births	105.0	202	77.4	164	26.3
2nd and 3rd	50.8	98	42.2	89	17.0
4th and 5th	54.9	106	46.0	98	16.2
6th and 7th	53.9	104	47.2	100	12.4
8th and 9th	52.6	101	46.2	98	12.2
10th-12th	47.0	91	42.9	91	8.7
13th-15th	45.8	88	46.3	98	− 1.1
16th-20th+	49.8	96	61.0	129	− 22.5

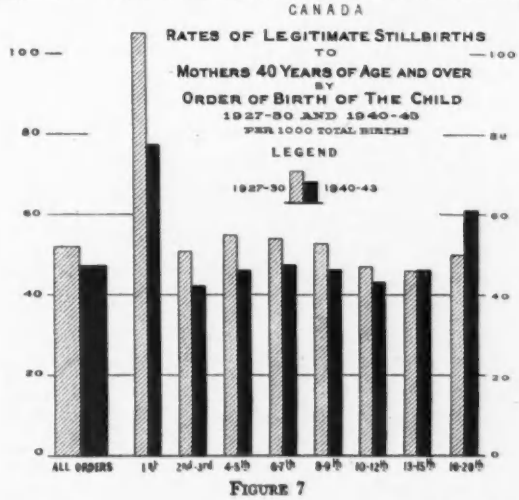

FIGURE 7

The tables and the chart show that the variation by order of birth of the stillbirth rates in each age-group is basically different from the variation when all age-groups are taken together; the influence of the age of the mother has been eliminated. First, the variation in each age-group is a great deal less; for the age-group 25-29 years, the highest rate is about *one and a half times as high* as the lowest rate, and for the age-group 40 years and over it is about *twice as high*. The variation in each age-group is also less in 1940-43 than in 1927-30. Second, and more important, the main variation of the rates in each age-group is in the rate for 1st births. In both age-groups shown, the rate for 1st births is the highest rate. More generally, as the age of the mother increases, the difference between the stillbirth rate for 1st births and the rate for all subsequent orders becomes greater, and the rates for the subsequent orders become more nearly equal. Chart 7 illustrates this trend for mothers 40 years of age and over.

Summary

1. Stillbirths in Canada at present constitute about 2.5 per cent of the total number of births, and about 30 per cent of the total loss of life under one year of age. The former percentage is decreasing, the latter is increasing.

2. The rate of stillbirths has been falling slowly, but less than the rates of infant mortality. From 1927-30 to 1940-43, the rate of stillbirths fell by 18 per cent, the rate of infant mortality under 1 week fell by 30 per cent, the rate from 1 week to 1 month by 40 per cent, and the rate from 1 to 12 months by 46 per cent. The longer the period of life during the first two years, the greater the proportionate fall in the rate of infant mortality. In the case of stillbirths, where the period of life is zero, the fall has been least.

3. The sex of the child is an important factor affecting the rate of stillbirths. In 1940-43, the rate of male stillbirths was 18 per cent higher than the rate of female stillbirths. The rate of male stillbirths has been falling faster than the female rate; in 1927-30 the male rate was 28 per cent higher than the female rate.

4. The legitimacy of the child is also an important factor affecting the rate of stillbirths. In 1927-30, the rate of illegitimate stillbirths was 56 per cent higher than the legitimate rate; in 1940-43, it was 27 per cent higher. Allowing, however, for the different distribution by age of the mother of illegitimate births, the illegitimate rate was 83 per cent higher in 1927-30 and 38 per cent higher in 1940-43. Thus, the rate of illegitimate stillbirths fell by 38 per cent compared to a fall of 17 per cent in the legitimate rate. The social barriers to the proper pre-natal and natal care of illegitimate children have been breaking down.

5. The age of the mother is of decisive importance in affecting the rates of stillbirth. For mothers under 25 years, the rate is lowest, and it increases sharply with age. For mothers 45 years and over, it is *three times as high* as for mothers under 25 years. The influence of the age of the mother is most marked in the case of 1st children; it becomes considerably less marked as the order of birth increases.

The fall in the rate of stillbirths has been greatest in the youngest age-group and progressively smaller as the age of the mother increases. For mothers under 20 years, the rate fell by 29 per cent from 1927-30 to 1940-43, and for mothers 20-24 years, by 21 per cent. On the other hand, for mothers 40-44 years, the fall of the rate was only 9 per cent, and for mothers 45 years and over, it was only 7 per cent.

6. The order of birth of the child is also of decisive importance in affecting the rates of stillbirth. The rate for 1st children is about 15 per cent higher than the general rate. However, it has also fallen the most; in 1927-30, it was 27 per cent higher than the general rate. The rate for 2nd children is lowest, about 25 per cent below the general rate. The rate then increases sharply with the order of birth of the child. For 16th children and over, it is *three times as high* as the rate for 2nd children.

The fall in the rates has been greatest in the lower orders of birth. For the middle orders—4th to 9th children—the fall has been much smaller, and for the higher orders—10th birth and over—the rate has actually *increased*.

The age of the mother and the order of birth of the child are naturally closely correlated; the middle orders are mainly concentrated in the age-groups 25-39 years, and the higher orders are mainly concentrated in the age groups 35 years and over. The smaller proportionate fall in the rates for the middle orders and the actual *increase* in the rates for the higher orders explain why the fall in the rates for the different age-groups has been proportionately less as the age of the mother increases.

7. The results of this study of the rates of stillbirths according to sex, legitimacy, age of the mother and order of birth of the child make it clear that these demographic factors must be taken into account in a study of the medical causes of stillbirths on the one hand, and of the social conditions involved on the other. Detailed and valuable medical study of the statistics of stillbirths will soon be possible on the basis of the Classification of Causes of Stillbirths published by the Dominion Bureau of Statistics. Looking to the future, a study of the social factors which may affect the rate of stillbirths would also be of interest and value.

Nutrition and School Children

J. ERNEST SYLVESTRE, M.D., D.P.H.
Director, Division of Nutrition
Ministry of Health, Province of Quebec

I HAVE the impression that it would be superfluous to discuss the necessity of including nutrition as a fundamental in any public health program. Indeed, to-day it is noticeable that few well-informed public health workers, in speaking of any subject related to the promotion of good health, neglect to include good nutrition among the essential factors. Our increasing knowledge of nutrition is convincing everyone of its influence on growth, health and efficiency. Therefore, it seems that the time has come to multiply field studies in order to determine which nutrition problems are prevalent and whether the worst conditions may be improved by education or necessitate more complicated means.

In order to accumulate information of this kind, the Ministry of Health undertook two studies related to nutrition among school children: a summary survey of food habits and findings on physical conditions.

Summary Survey of the Food Habits of 2,300 School Children

In May and the beginning of June 1943, we asked the personnel of our county health units to interview a limited number of school children in the age-group 10 to 14 years, in order to ascertain their food intake during the last 24-hour period. Twenty-five county health units, distributed throughout the Province, collaborated in this survey. After revision, 2,300 dietary records were found to be suitable for tabulation. This work was done by the personnel of our Division of Nutrition.

The value of the diets was calculated on the basis of points allowed for the essential food groups, as established on the "score sheet for each day's meals," prepared by the Division of Nutrition of the Department of National Health and Welfare. According to this method, the total number of points allowed amounts to 110; we reduced this to 100, because we did not allow 5 extra points when the meat served was liver or when cod liver oil was given. The dietary records were also tabulated according to the consumption of the essential foods recommended in "Canada's Food Rules".

This dietary survey is not presented as a scientific observation. A record of one day's food intake does not necessarily show a true picture of one's food habits; nevertheless, when essential foods such as milk, fruits, vegetables and cereals are concerned, there is a great chance that, if no consumption is registered for that particular day, these foods are not consumed often enough

Presented before the Section of Public Health Nutrition at the thirty-fourth annual meeting of the Canadian Public Health Association, held in the Royal York Hotel, Toronto, May 6-8, 1946, in conjunction with the annual meeting of the Ontario Health Officers Association.

to be considered as habitually used. Furthermore, those who have enough experience with people's food habits must acknowledge that our figures in Table I are similar to many others originating from more complicated procedures.

TABLE I

A Summary Survey of Food Habits Among School Children (Age Group 10 to 14) in 1943 (May-June)

Percentage distribution of children, according to their food consumption, in relation to possible influencing factors.

Possible Influencing Factors Considered	Total	Sex		Residence			Economic Conditions	
		Boys	Girls	Country	Village	Town	Poor	Good
Number of Children in Each Group	2,300	1,121	1,179	737	750	813	698	1,602
	%	%	%	%	%	%	%	%
Score for One Day's Meals								
Less than 50%	59.8	59.9	59.8	63.8	58.6	57.4	65.2	57.5
Less than 70%	90.7	90.7	90.7	94.4	89.1	88.8	93.1	89.7
70 to 100%	9.3	9.3	9.3	.6	10.9	11.2	6.9	10.3
Use of Essential Food								
Milk 4 glasses (20)	33.1	36.0	30.3	33.1	32.6	33.5	28.2	35.1
3 glasses (15)	16.4	17.0	15.9	16.3	15.2	17.7	15.9	16.7
2 glasses (10)	15.8	16.1	15.5	16.4	16.0	15.1	16.3	15.6
1 glass (5)	17.7	15.5	19.7	17.4	17.7	17.8	18.1	17.5
None	17.0	15.4	18.6	16.8	18.5	15.9	21.5	15.1
Cheese Consumption (5)	10.4	10.9	10.0	6.8	13.5	10.9	7.9	11.5
Fruits 2 servings (1 citrus) (20)	14.4	14.1	14.8	12.3	17.2	13.8	12.0	15.5
1 serving (citrus) (15)	21.7	21.3	22.0	18.7	18.1	27.6	22.4	21.4
1 serving (not citrus) (5)	20.6	20.2	21.0	22.1	21.8	18.2	17.8	21.8
None	43.3	44.4	42.2	46.9	42.9	40.4	47.9	41.3
Vegetables (Potatoes excluded)								
2 servings (10)	28.9	27.2	30.5	23.2	29.3	33.7	23.5	31.3
1 serving (5)	26.0	26.5	25.5	29.7	29.1	19.8	27.5	25.3
None	45.1	46.3	44.0	47.1	41.6	46.5	49.0	43.4
Potatoes								
2-3 servings (5)	54.7	56.4	53.0	56.2	55.1	52.9	55.0	54.5
1 serving (5)	29.7	28.1	31.3	27.4	30.4	31.2	28.7	30.2
None	15.6	15.5	15.7	16.4	14.5	15.9	16.3	15.3
Whole Grain Cereals (5)	24.6	24.5	24.6	25.5	28.4	20.2	24.8	24.5
Vitamin "B" Bread (6-10)	5.9	6.1	5.7	3.7	7.3	6.6	5.0	6.3
Meat or Fish and Egg (15)	33.4	33.1	33.7	37.0	35.7	27.9	31.8	34.1
" or " or " (10-5)	55.6	55.4	55.7	49.0	56.0	61.1	52.4	56.9
None	11.0	11.5	10.6	14.0	8.3	11.0	15.8	9.0

Table I shows the percentage distribution of the children according to food consumption. The score for the total food intake is astonishingly low, 90.7 per cent of the pupils having less than 70 per cent of the ideal scoring. Such a low score is graded as poor and every effort must be made to improve the dietary habits. Data giving the proportion of children who use or do not use the essential foods indicate why the scoring is not better. A high proportion of pupils (17 per cent) do not use milk, while 43 per cent do not eat fruits and 45.1 per cent omit vegetables from their diet. Cheese is very unpopular, being used by only 10.4 per cent, and whole-grain cereals are not in great favour—24.5 per cent. Nearly 50 per cent of the pupils limit their diet to the consumption of white bread, highly refined cereals, meat, potatoes, pastries and sweets.

It is evident that, if our data are deserving of credit, such diets are absolutely inadequate and the majority of the pupils interviewed are exposed to deficiencies of calcium, vitamins A and B complex, and probably also of

ascorbic acid, except those who receive two or three servings of potatoes each day.

We tried to find out if any of the ordinary influencing factors could be responsible for such bad dietary conditions. We considered the sex, the residence of the parents, and the economic condition of the family. But there is so little variation between the groups in each factor that it seems impossible to draw any decisive conclusion. Even if among the children of poor families the prevalence of a low scoring is somewhat greater, the difference is not large enough to conclude that indigence is the unique unfavourable factor which we have to fight against. On the contrary, if more fortunate people do not enjoy a diet appreciably better than less fortunate ones, is it not plausible to conclude that, until social measures are taken to give every human what is necessary for his complete welfare, every effort should be made to inform people of the principles of nutrition and to bring everyone to better food habits?

Findings on Physical Examination of School Children

During the same year (1943), 66,665 children in thirty-two county health units were given a physical examination at school.

In examinations of this kind, the medical staff must proceed according to well-defined directives as to the parts of the body which must be observed and how to appreciate their condition. Special attention must be given to the nutritional status, which must be graded as poor or bad according to the intensity or the multiplicity of the symptoms of nutritional deficiencies: tooth decay, pyorrhoea, weight, paleness, and chronic fatigue. Goitre is here registered as a physical defect only when enlargement of the thyroid gland is apparent.

Although such examinations are not completed by laboratory tests nor supported by examination with special apparatus, they nevertheless give us enough information to estimate the nutritional status of this large number of school children, even though our method does not permit us to discover every sign of nutritional deficiency.

The first part of Table II shows that 64.8 per cent of the pupils examined were found to have physical defects. Such a percentage is alarming. From the second part, in which the classification of these defects is given, it will be seen that most abnormalities might result from or be conducive to malnutrition. Therefore, medical and surgical treatment, where warranted, should be included among the essential measures for improving the state of nutrition. Even though diet may not be the only factor responsible for this disastrous situation, every effort should be made to induce better dietary habits in order to prevent the recurrence of many known and possibly unknown signs of nutritional deficiencies, as well as to increase the resistance of the majority of these pupils, who would never had had defects if they had received a more adequate diet. This is particularly true of tooth decay, found in 40.2 per cent of the pupils examined; malnutrition, observed in 19 per cent; and goitre, which is no doubt more prevalent than the 1.5 per cent stated here.

TABLE II

SUMMARY OF OBSERVATIONS FOLLOWING THE MEDICAL EXAMINATION OF PUPILS

Distribution of school children examined in 1943, according to their physical condition

CLASSIFICATION	TOTAL		*GROUP A		*GROUP B	
	No.	%	No.	%	No.	%
Children examined	66,665		30,777		35,888	
Found normal	23,475	35.2	11,313	36.8	12,162	33.9
Found physically defective	43,190	64.8	19,464	63.2	23,726	66.1

CLASSIFICATION OF PHYSICAL DEFECTS

PHYSICAL DEFECTS CONSIDERED	Pupils referred for treatment					
	TOTAL		GROUP A		GROUP B	
	No.	†%	No.	†%	No.	†%
Enlarged cervical glands	9,110	13.7	4,844	15.7	4,266	11.9
Goitre	980	1.5	434	1.4	546	1.5
Tooth decay	26,775	40.2	11,543	37.5	15,232	42.4
Infected tonsils	12,013	18.0	5,543	18.0	6,476	18.0
Adenoids	6,904	10.4	3,344	10.9	3,560	9.9
Defective hearing	746	1.1	366	1.2	380	1.1
Defective vision	4,680	7.0	1,816	5.9	2,864	8.0
Malnutrition	12,670	19.0	5,416	17.6	7,254	20.2
Heart diseases	303	0.5	170	0.6	133	0.4
Tuberculosis (pulmonary)	196	0.3	149	0.5	47	0.1
Crippled children	373	0.6	151	0.5	222	0.6

GROUP B

DISTRIBUTION OF PUPILS ACCORDING TO THEIR FORMER AND ACTUAL PHYSICAL CONDITION

CLASSIFICATION	Previous examination		As found in 1943			
			Normal		Defective	
	No.	%	No.	%	No.	%
Total children examined	35,888		12,162	33.9	23,726	66.1
1—DEFECTIVE	23,847	66.4				
Improved to normal			3,667	15.4		
Still defective					20,180	84.6
2—NORMAL	12,041	33.6				
Still normal			8,495	70.5		
Defective					3,546	29.5

*Group A: Children examined for the first time at school. †Based on pupils examined.
Group B: Children examined during the past few years and reexamined this year.

Let us now divide the total number of pupils examined into two groups: group A, the younger pupils, and group B the older ones. In group A are those pupils who had their first physical examination at school. The physical condition of the majority is bad, 63.2 per cent having defects. Why is this? These children are just out of the preschool age-group, and although parents are very health-conscious where their babies are concerned, unfortunately they seem to have a dangerous feeling of security as long as their growing children are not really ill. The preschool-age period is a neglected one. Who

is responsible for this situation—parents or health organizations? This is a matter of great concern. In any event, if better care had been given those preschool children, the majority should have been in better condition.

The children in group B are those who previously had had one, two or multiple examinations at school and were re-examined in 1943. Here, health conditions are worse than in the first group, 66.1 per cent being found to have defects. The third part of Table II shows that 15.4 per cent of the 23,847 children found defective at a previous examination are now normal, whereas 29.5 per cent of the 12,041 children found normal at the earlier examination are now found to be defective.

These findings confirm previous experiences of many public health workers. Follow-up work after a previous examination was done with the defective children, whereas the normal ones were neglected; consequently, many of the latter have developed abnormalities. Therefore, to express in a few words a principle which should guide our nutrition work with school children: Every growing child must receive constant attention and adequate care in order to improve its health if it has defects and to keep it fit if it is normal.

Conclusion

In view of the fact that the food habits of the majority of the pupils interviewed were inadequate and that the majority of the pupils examined showed physical abnormalities more or less related to nutrition, it is more than probable that if we succeeded in improving the dietary habits of children from the very beginning of life and in maintaining an adequate diet throughout their growing period, their physical condition would be better and they would have a greater chance of being physically fit when they enter adult life.

Ornithosis Among "Wild" Pigeons in Ontario

N. A. LABZOFFSKY, D.V.Sc.
Virus Section, Division of Laboratories, Department of Health of Ontario, Toronto

IT is now recognized that some 50 species of five large orders in the class *Aves* (1) may serve as a natural host for the virus of psittacosis. Because of the wide variety of natural hosts which may be infected by this virus, Meyer (1) introduced the terms "psittacosis" and "ornithosis" to indicate the primary origin of the infection. The term "psittacosis", he suggested, is to be used in cases of infection with the virus of psittacine derivation, whereas the term "ornithosis" is to be indicative of human and bird infection with "psittacosis-like virus of non-psittacine origin". In this report "ornithosis" is used according to this definition.

Among the new members added in recent years to the long list of the natural hosts for psittacosis virus are the barnyard fowl (1, 4, 6) and the pigeon. The occurrence of psittacosis infection among pigeons was first described by Coles (2) in South Africa. Later, American workers (3, 4, 5, 6, 7, 8,) reported the existence of this condition in pigeons in different parts of the United States and showed evidence of the transmission of this infection from pigeon to man (1, 4, 5, 8). This newly recognized source of human infection, together with the recent evidence indicating that psittacosis is a more widely spread human disease than previously regarded (7, 9), added an additional significance to psittacosis from the public health standpoint.

In the present communication the results of a limited survey undertaken to determine the incidence of ornithosis among "wild" pigeons in Ontario is reported. The observations were made on 146 birds obtained from three Ontario cities.

Material and Methods

A strain of psittacosis virus 6BC, which originally was obtained through the courtesy of Dr. K. F. Meyer, the George Williams Hooper Foundation, San Francisco, California, was used in this study as a reference virus.

A total of 146 pigeons, caught at random in three Ontario cities, were examined for the presence of a latent ornithosis infection. Nine birds were obtained from city A, 43 from city B, and 94 from city C.

Upon arrival at the laboratory, the pigeons, after examination for signs of illness, were bled out under light anaesthesia. The serum from each bird was collected separately for serological studies. Using aseptic technique, the birds were autopsied and the spleen and liver from each bird were removed. A portion of

Presented at the fourteenth annual Christmas meeting of the Laboratory Section, Canadian Public Health Association, held in the Windsor Hotel, Montreal, December 16 and 17, 1946.

each of these organs was reserved for bacteriological test and also for direct microscopic examination. The remainder was stored in carbon-dioxide snow until the results of the sterility tests and the serological findings were available.

Serological Studies

Each serum was tested for the presence of psittacosis antibodies, employing complement fixation and rapid agglutination reactions. The techniques of these tests have been described elsewhere (11).

Isolation of the Virus

For isolation of the virus, spleens and livers from the pigeons were used. A saline suspension of the organs was inoculated intracerebrally and intraperitoneally into mice, using five animals for each route of inoculation, and also periembrionically into ten to twelve eight-day-old developing chick embryos. A pooled organ suspension from each bird that showed pathological abnormalities on autopsy or whose serum gave positive serological reactions was inoculated separately, whereas organs from each group of five birds that appeared normal on autopsy and whose sera gave negative serological reactions were pooled.

Microscopic Examination

Direct smears were prepared from the organs of the pigeons as well as from the tissues of inoculated mice and eggs. The smears were stained both by Machiavello and Castaneda techniques.

Cross-Immunity Tests

For identification of the strains of virus isolated from the pigeons, cross-immunity tests were employed, using mice as experimental animals. Only two pigeon strains of virus were tested in this manner.

One group of 48 mice was immunized with a virus strain isolated from pigeon A7, a second similar group with virus from pigeon C24, and a third group of 72 mice with reference virus 6BC. The immunization of the mice consisted of three weekly intraperitoneal injections of 0.25 cc. each of formalized vaccine prepared from infected allantoic fluid of developing chick embryo. Following this, two injections of virulent mouse brain 1:100 and 1:50 were given by the same route, the dose being 0.25 cc. and the interval between the injections one week. Two weeks following the last injection the surviving mice in each group immunized with pigeon strains were divided into two lots. One lot was challenged by the intracerebral route, using two mice for each dilution, with increasing concentrations of homologous virus, and the second lot with 6BC psittacine virus. The mice surviving immunization with the 6BC strain were divided into three groups. One group was challenged with 6BC virus, the second with pigeon strain A7, and the third with pigeon strain C24. Normal mice of the same age were included in the test for the determination of the end point of each virus suspension. Infected allantoic fluid was employed as a source of virus in challenging the resistance of immunized mice, rather than infected mouse tissues; the former, being richer in the virus, has a higher intracerebral titre than the infected mouse brain or spleen. Further, the intracerebral mouse titre of the allantoic fluids infected with pigeon strains of the virus was comparable to that infected with 6BC psittacine virus.

Experimental Data

Clinical Observation and Pathological Findings

On clinical examination, all of the 146 birds, with the exception of one (C24), appeared to be active and in a healthy condition. The affected bird (C24) displayed inactivity, emaciation, signs of diarrhoea, some nasal discharge and a degree of dyspnoea.

Gross abnormalities encountered in 19 of the 23 sero-positive pigeons (unfortunately an autopsy was not performed on sero-positive pigeon B1) were confined mainly to the spleen, which in all cases was enlarged. In addition, enlargement and congestion of the liver were observed in three cases (A1, C18, C76). Pigeon C24, which showed clinical signs of illness, presented a degree of emaciation and had a slight icteric tint of the skin. The peritoneal cavity contained copious blood-tinged sero-fibrinous exudate; the liver and spleen were enlarged, dark, motled and friable; the kidneys were soft and grayish; the pericardial sac contained a moderate amount of fibrinous exudate and the lungs were congested and oedematous. Three pigeons (C5, C11, C83), whose sera also gave positive serological reactions, appeared to be normal at autopsy and no virus was isolated from these birds.

Impression smears prepared from the enlarged spleens and livers did not yield, with the exception of C24, definite findings of elementary bodies. In the case of C24, on the other hand, the elementary bodies were present in large numbers in the smears prepared from the exudate over the liver, pericardial exudate and in impression smears of hepatic and splenic tissues.

Serological Findings

Sera from 4 birds out of 9 from city A, 1 out of 43 from city B, and 19 out of 94 from city C gave positive rapid agglutination and complement-fixation reactions with psittacosis antigens. The complement-fixing titre of the sera ranged from 1:10 to 1:640. The results of the rapid agglutination reaction were in complete agreement with those of the complement-fixation test; that is, the sera that were found to give positive agglutination reactions invariably gave positive complement-fixation results. This fact is of special interest since it appears to indicate that the agglutinins develop in the blood of infected pigeons regularly and holds a promise of utilizing this test for diagnostic and epidemiological studies.

Isolation and Identification of the Virus

A viral agent was isolated, both by animal and egg inoculations, from hepatic and splenic tissues of 14 of the 24 sero-positive pigeons from the three cities. All the strains isolated, with the exception of C24, failed to produce apparent illness in mice on intraperitoneal injection. On initial inoculation, however, elementary bodies were readily demonstrable in the peritoneal exudate, but not always in the splenic tissue of the inoculated mice. C24, on the other hand, was highly pathogenic for mice by the intraperitoneal route. All the 14 strains isolated were uniformly and highly infectious for mice by the intracerebral route. Structures, morphologically and tinctorially identical with the elementary bodies of psitta-

cosis virus, were demonstrable in the impression smears prepared from the meninges of infected mice.

All the 14 strains isolated grew readily in the yolk sac of the developing chick embryo. After four to five egg passages elementary bodies were present in great abundance in the allantoic fluid. This latter quality is also characteristic of psittacosis virus (11, 12).

TABLE I

AUTOPSY FINDINGS, SEROLOGICAL RESULTS AND RESULTS OF ISOLATION OF THE VIRUS

Pigeon Number	AUTOPSY FINDINGS	SEROLOGICAL RESULTS		ISOLATION OF VIRUS
		Rapid Agglutination Test	Complement Fixation. Dilution of serum that gave complete fixation (4+)	
A1	Spleen enlarged; liver dark mottled	+	1:80	+
A3	Spleen enlarged	+	1:20	+
A7	" "	+	1:80	–
A9	" "	+	1:160	+
B1	Autopsy not performed	+	1 640	Isolation not attempted
C5	No obvious lesions	+	1:80	–
C11	" " "	+	1:20	–
C14	Spleen enlarged	+	1:320	–
C17	" "	+	1:40	+
C18	Spleen enlarged, liver dark, friable	+	1:640	–
C22	Spleen enlarged	+	1:160	+
C2	" "	+	1:40	+
C24	Exudate in peritoneal cavity and pericardium; spleen and liver enlarged, dark and friable; lungs congested	+	1:640	+
C26	Spleen enlarged	+	1:40	–
C30	" "	+	1:320	+
C32	" "	+	1:40	+
C37	" "	+	1:160	+
C45	" "	+	1:320	+
C63	" "	+	1:160	+
C75	" "	+	1:20	–
C76	Spleen enlarged; liver dark, friable	+	1:10	–
C83	No obvious lesions	+	1:40	–
C84	Spleen enlarged	+	1:80	+
C86	" "	+	1:160	+

Complement-fixation antigens prepared from allantoic fluid of the developing chick embryos infected with pigeon strains A1, A9, C24, C32, and C86 gave positive complement-fixation reaction with known psittacosis-positive experimental serum. The complement-fixing titre of the serum was approximately the

TABLE II
CROSS-IMMUNITY TEST

Dilution of virus in inoculum	Mice immunized with pigeon virus A7		Mice immunized with pigeon virus C24		Mice immunized with psittacosis virus 6BC			Normal mice control		
	Challenged with		*Challenged with*		*Challenged with*					
	Pigeon virus A7	Psittacosis BC	Pigeon virus C24	Psittacosis 6BC	Pigeon virus A7	Pigeon virus C24	Psittacosis 6BC	Pigeon virus A7	Pigeon virus C24	Psittacosis 6BC
1:1	3,4	4,4	4,5	4,4	4,4	3,4	3,4	—	—	—
1:10	5,7	5,8	5,8	7,8	5,6	5,6	6,7	—	—	—
$1:10^2$	S,S	S,S	2,S	12,S	S,S	S,S	S,S	—	—	—
$1:10^3$	S,S	14,S	S,S	S S	S,S	16,S	S,S	4,4	4,4	4,5
$1:10^4$	S,S	S,S	S,S	S,S	17,S	S,S	S,S	3,5	5,6	4,5
$1:10^5$	S,S	S,S	S,S	S,S	S,S	S,S	19,S	4,5	6,6	5.6
$1:10^6$	S,S	S,S	S,S	S,S	S,S	S,S	S,S	4,6	5,7	4,7
$1:10^7$	S,S	S,S	S,S	S,S	S,S	S,S	S,S	7,S	6,7	6,7
$1:10^8$	—	—	—	—	—	—	—	S,S	S,S	S,S

Number—Day animal died.
S —Animal survived.
— —Dilution not tested.

same when titrated in the presence of the above antigens and comparable to that obtained with the antigen prepared from the reference virus 6BC.

The autopsy findings, serological reactions and results of the isolation of the virus are summarized in Table I. The results of cross-immunity tests are tabulated in Table II, from which it is seen that mice immunized with pigeon strains A7 and C24 were protected against up to approximately 100,000 intracerebral MLD's of the homologous viruses and reference virus 6BC. Mice immunized with the 6BC strain, likewise, were found to be resistant up to approximately 100,000 intracerebral MLD's of both the homologous strain and the heterologous (A7 and C24 strains.

DISCUSSION

The present limited survey indicates that an appreciable percentage of "wild" pigeons, at least in some cities in Ontario, are affected with psittacosis or psittacosis-like virus. Of the total of 146 pigeons examined, 16.4 per cent contained in their sera agglutinins and complement-fixing antibodies which reacted with psittacosis antigens. A viral agent, morphologically and tinctorially identical with psittacosis virus, was isolated from 58.3 per cent of the sero-positive pigeons. All the strains isolated were uniformly pathogenic for mice by the intracerebral route, but failed to produce fatal infection, with the exception of one strain, C24, by the intraperitoneal route. The low virulence of pigeon strains of the virus for mice by the intraperitoneal route has been reported by other investigators (3, 5, 8). Strain C24, which was isolated from an acutely ill bird, differed from the other isolated strains by its high pathogenicity for mice by the intraperitoneal route, but in all other respects resembled the other strains. This variation of pigeon strains of the virus in pathogenicity for mice has also been observed by Meyer and his co-workers (5). All the strains of the virus isolated grew readily in the yolk sac and allantoic fluid of the developing chick embryo. Further, two

of the pigeon strains tested were capable of immunizing mice against psittacosis virus. Mice immunized with psittacosis virus, in turn, were protected against pigeon strains of virus to approximately the same degree. In addition, antigens prepared from 5 pigeon strains gave a positive complement-fixation reaction with known psittacosis antiserum.

On the basis of the above evidence it would, therefore, be justifiable to assume that the viral agent isolated from the pigeons does not differ in any significant way from ornithosis virus isolated from pigeons by Pinkerton and Swank (3), by Meyer, Eddie and Yanamura (5), and by Smadel, Wall and Gregg (8).

The high percentage of recovery of virus, 58.3 per cent, from the sero-positive birds would indicate that a considerable number of pigeons have latent ornithosis infection and, therefore, represent a vast reservoir of the virus. What danger such an apparently wide infection in pigeons presents to humans is a matter of conjecture at the moment, yet the fact that in the United States human psittacosis infection has been traced to pigeons (4, 8) must be borne in mind.

The recent work by Smadel (7) indicates that approximately 25 per cent of the cases of atypical pneumonia surveyed by him in the United States were caused by infection with strains of the virus of psittacosis. How prevalent psittacosis infection is among humans in Canada is not known at present, and it would be of interest to determine how many cases of so-called atypical pneumonia could be attributed to psittacosis virus. Serological survey of such cases may reveal an interesting picture from the public health standpoint.

Summary

A survey of "wild" pigeons from three Ontario cities, totalling 146 birds, was made to determine the existence of ornithosis infection. Four birds out of the total of 9 from city A,1 out of the total of 43 from city B, and 19 out of the total of 94 from city C were found to be sero-positive when tested with psittacosis antigens, employing rapid agglutination and complement-fixation techniques.

A viral agent morphologically and tinctorially identical with psittacosis virus was isolated from 58.3 per cent of the reactors. Cross-fixation and cross-immunity tests indicate that the strains of virus isolated are closely related to, if not identical with, the virus of psittacosis.

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Canadian Journal of Public Health

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THE DEVELOPMENT OF NEW ANTIBIOTICS

THE story of the discovery of penicillin by Sir Alexander Fleming in 1928 is well known. He made observations regarding its possible value as an antibiotic, but the work remained practically undeveloped until 1941, when Sir Howard Florey re-investigated its possible clinical value and developed methods for its preparation and purification. When penicillin was first made available, the cost was twenty dollars for a single vial of 100,000 units, while to-day the same amount is furnished to hospitals for approximately fifty cents. Five years ago, penicillin was in crude form only and available for the treatment of a very few; now, in highly purified crystalline form, it is available for world needs. In clinical work, penicillin has been used in almost all infections, and its value has been fully determined. Only those who are familiar with the story of the intensive research conducted in the United States, Great Britain, Canada and other countries, have an idea of the tremendous volume of work which was undertaken to determine its chemical structure and its pharmacological and bacteriological actions, and to obtain other essential scientific information. What was considered to be almost impossible was achieved with the announcement of the synthesis of penicillin by Vincent du Vigneaud and his associates in 1946, based on research work performed in the Merck Research Laboratories and the Oxford Chemical Laboratories in England. The perfecting of penicillin and the making of it available for all were the result of two factors: the World War, with its needs; and the willingness of governments, particularly that of the United States, to provide funds to aid in its manufacture and clinical and laboratory studies. The achievement was made possible by the team-work of governments, industry, and scientific and clinical workers. Many millions of dollars were expended by the United States Government in the development of penicillin. No other drug has been so rapidly and successfully developed nor so quickly made available for world-wide use.

Streptomycin was developed towards the close of the war, at a time when government aid was much more limited, and in consequence the intensity and extent of the investigations were not to be compared with those relating to penicillin. However, clinical studies conducted by Dr. Chester S. Keefer, whose leadership in the clinical testing of penicillin is so well known, were made possible by a group of manufacturers in the United States. As a result, streptomycin is now known to be effective in the treatment of tularaemia and in combating certain genitourinary-tract infections and in influenzal meningitis. Its possible value in the treatment of tuberculosis has yet to be fully determined. Recently published studies of one hundred cases by Hinshaw et al[1], Division of Medicine of the Mayo Clinic, have given some measure of promise. Unfortunately, streptomycin possesses certain toxic characteristics when given in doses necessary for the treatment of tuberculosis and over the extended period of time in which its use is indicated; these toxic manifestations include nerve deafness and disturbances of equilibrium. In other infections, when streptomycin is administered for a short time, no untoward symptoms are usually manifested.

These facts must be remembered when considering the further advances in the introduction of antibiotics. Undoubtedly many micro-organisms and moulds produce substances which inhibit or destroy the growth of bacteria or moulds. Many thousands of organisms and moulds have been studied and substances isolated, but only a few have been found to possess marked activity and to be sufficiently free from toxic factors to permit of clinical trial. Of necessity, progress must be much slower than in the development of penicillin. Commercial companies cannot be expected to provide funds in amounts necessary for the intensive development of many of the newer antibiotics. However, the field has been opened and it will continue to be the subject of study by many investigators. Discovery is but part of the story in the successful development of any new therapeutic agent; the support of industry, which has played such an important part in the development of penicillin, is required as well. Government assistance proved of inestimable value in making penicillin available. It is to be hoped that some measure of aid will again be given, even if not in the form of direct participation that was possible during the war years, to advance research in the field of antibiotics through grants for suitable laboratory investigations.

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[1] *Treatment of Tuberculosis with Streptomycin. H. Corwin Hinshaw, William H. Feldman, and Karl H. Pfuetze, J.A.M.A. 1946, 132: 778-782.*

TRENTE-CINQUIEME CONGRES ANNUEL

Association Canadienne de Sante Publique

•

CONFERENCE

State and Provincial Health Authorities of North America

•

THIRTY-FIFTH ANNUAL MEETING

Canadian Public Health Association

•

CHATEAU FRONTENAC, QUEBEC
May 20 - 21 - 22 Mai
1947

COMITÉ LOCAL D'ORGANISATION

Président honoraire . . . . . Dr Jean Gregoire
Présidents conjoints . . . . . Dr L. R. Vezina & Dr Emile Martel

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Dr Paul Parrot
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Dr J. E. Sylvestre
Dr C. A. Gauthier

Sous-comité de publicité
Dr Bruno LaHaye
Dr C. Pomerleau
M. C. M. Boissonneault

Enrégistrement

Tous les délégues sont priés de s'enrégistrer. Le coût est de $2.00 pour les membres et les invités.

Un thé sera servi aux dames mardi l'après-midi.

Au bureau de l'enrégistrement, au foyer de la Salle de Bal, l'on pourra obtenir les billets exigés pour déjeuner, dîner ou excursions.

L'on pourra aussi y payer sa contribution comme membre de l'Association.

Dîner annuel et danse

Le dîner annuel de l'Association aura lieu dans la Salle de Bal mercredi, le 21 mai, à 7.30 p.m. Les femmes des délégués sont cordialement invitées. L'habit n'est pas de rigueur.

Registration

Delegates are requested to register. The fee is $2.00 for members and for guests.

There will be a tea for the ladies on Tuesday afternoon.

Annual Dinner and Dance

The annual dinner will be held in the Ball Room on Wednesday, May 21st, at 7.30 p.m. The wives of members are cordially invited. (Dress informal.)

Tickets will be available at the Registration Desk in the Ball Room lobby. Application for or renewal of membership may also be arranged here.

Travel Rates: RETURN TRIP FOR ONE AND ONE-THIRD TIMES THE COST OF A ONE-WAY TICKET

The Association has arranged with the Canadian Passenger Association for reduced train fare to and from Quebec City. Delegates attending the meeting (and members of their immediate family) may purchase a one-way fare good for the dates shown below, and obtain at the same time a "Standard Convention Certificate" from the station agent. The certificate will be validated at the meeting, and it entitles the holder to purchase a return ticket in Quebec for one-third of the normal cost. Return tickets are good for a thirty-day period from date of purchase of the original ticket to the meeting.

Territory	Dates "Going" Ticket May Be Used
British Columbia	May 13th - 18th, inclusive
Alberta	May 14th - 19th, inclusive
Saskatchewan, Manitoba, Ontario (Armstrong and points west)	May 15th - 20th, inclusive
All points east of Armstrong	May 15th - 21st, inclusive

Sleeping-car reservations may be made in the usual manner when the "going" ticket is purchased. The ticket will be stamped "good only on May 14th - 20th" (or as shown above, depending upon the starting-point).

Exhibits

The attention of members is directed to the exhibits of the following companies, which will be on view in the Ball Room lobby:

Burroughs Wellcome & Co.
Canadian Kodak Company
Carnation Company Limited
Central Scientific Company of Canada Limited
Ferranti Electric Limited
Charles E. Frosst & Co.
Ingram & Bell Limited
Lederle Laboratories Division, North American Cyanamid Limited
Reckitt & Colman (Canada) Limited
Winthrop Chemical Company Inc.
G. H. Wood & Company
John Wyeth & Brother (Canada) Limited

Programme

Mardi le 20 mai 9.30 a.m. Tuesday, May 20th

EPIDEMIOLOGIE Section EPIDEMIOLOGY

DR A. R. FOLEY, Président

Salle de Bal — Ball Room

Porteurs de germes typhiques.	DR JACQUES GAUTHIER
Tourisme & Salubrité.	DR FLAVIUS LECLERC
Un problème statistique.	DR BRUNO ALARIE
The Place of Preventive Medicine in the Post-war Army.	LT.-COL. E. J. YOUNG
The R.C.A.M.C. Contribution to the War Effort through Preventive Medicine.	DR LEO LYNCH

Mardi le 20 mai 9.30 a.m. Tuesday, May 20th

INFIRMIERES-HYGIENISTES Section PUBLIC HEALTH NURSING

Présidente—MISS MARY J. RITCHIE—Chairman

Salle des Comités — Committee Room

Tuberculose et Infirmière Hygiéniste.	MLLE RACHELLE PAQUET
Santé publique et Infirmière Hygiéniste.	MLLE CECILE DUBREUIL
B.C.G. et Infirmière Hygiéniste.	MLLE ANNETTE JODOIN
Poliomyélite et Infirmière Hygiéniste.	MLLE MARIE-PAULE SAVOIE
Hygiène en colonie.	MLLE MADELEINE LAVOIE
Report of the Study Committee.	MISS ISOBEL BLACK

HORAIRE

SEANCES - DEJEUNERS - DINER, etc.—MEETINGS - LUNCHEONS - DINNER, etc.					
Enrégistrement—Registration Comptoir des billets—Tickets booth		Information			
A.M.	SECTIONS	Epidémiologie Epidemiology			
		Statistiques vitales Vital statistics			
		Infirmières hygiénistes Public Health Nursing			
		Nutrition Nutrition			
		Lutte anti-vénérienne Venereal Disease Control			
		Hygiène industrielle Industrial Hygiene			
		Education en Hygiène Publique Public Health Education			
		Administration de la Santé Publique Public Health Administration			
	Médecins hygiénistes de Québec Quebec Health Officers				
	State and Provincial Health Authorities				
P.M.	Déjeuners Luncheons				
	Comité exécutif Executive Committee		Lundi, 19 mai Monday, May 19th	2.30	Committee Room
	Séances générales General Sessions				
	Thé Afternoon Tea				
	Diner et danse Dinner and dance				

SCHEDULE

MARDI - TUESDAY 20 mai May 20th	MERCREDI - WEDNESDAY 21 mai May 21st	JEUDI - THURSDAY 22 mai May 22nd
Foyer de la Salle de bal - - - - Ball Room lobby		
Salle de bal Ball Room 9.30	Salle de bal Ball Room 9.30	Salle de bal Ball Room 9.30
	Salle J. Cartier J. Cartier Room 9.30	Salle J. Cartier J. Cartier Room 9.30
Salle des comités Committee Room 9.30	Salle des comités Committee Room 9.30	Salle des comités Committee Room 9.30
Bibliothèque Library 9.30	Salle des comités Committee Room 9.30	
	Bibliothèque Library 9.30	
Salle J. Cartier J. Cartier Room 9.30		
	Salon bleu Blue Room 9.30	
		Salle River-View River View Room 9.30
		Bibliothèque 9.30
River View Room 9.30	River View Room 9.30	
Salle River-View River View Room 12.30		Salle River-View River View Room 12.30
Salle de bal Ball Room 2.30	Salle de bal Ball Room 2.30	Salle de bal Ball Room 2.30
Salle River-View River View Room 5.00		
	Salle de bal Ball Room 7.30	

Mardi le 20 mai 9.30 a.m. Tuesday, May 20th

NUTRITION **Section** **NUTRITION**

Président—Dr J. E. Sylvestre—Chairman

Bibliothèque — Library

Valeur nutritive moyenne d'un repas servi à l'usine.	M. ANDRE GASNIER
Nutrition Teaching in Schools.	MISS JUANITA ARCHIBALD
Clinical Diagnosis of Malnutrition.	DR. L. B. PETT

Mardi le 20 mai 9.30 a.m. Tuesday, May 20th

HYGIÈNE INDUSTRIELLE **Section** **INDUSTRIAL HYGIENE**

Président—Dr F. J. Tourangeau—Chairman

Salle — Jacques Cartier — Room

Industrial Hygiene.	DR. E. A. WATKINSON
Experiences Encountered in Establishing an Industrial Health Service.	DR. A. C. HILL
Discussion opened by	DR. W. H. CRUICKSHANK
Arsenic Poisoning.	DR. W. M. WILSON
Selective Settling and Dispersion of Industrial Dusts.	M. B. BEAUPRE
Air Conditioning in Industry.	M. S. PLAMONDON

Mardi le 20 mai 9.30 a.m. Tuesday, May 20th

STATE AND PROVINCIAL HEALTH AUTHORITIES OF NORTH AMERICA

Salle — River View — Room

Professional Training in Public Health. Discussion.	DR. GAYLORD W. ANDERSON
The Importance of Blood and Blood Fractions in Public Health. Discussion.	DR. VLADO A. GETTING
Comments on the Cancer Control Program. Discussion.	DR. WILLIAM D. STOVAL
The Health Officer and the Workers' Health. Discussion.	DR. STANLEY H. OSBORN

Mardi le 20 mai 12.30 p.m. Tuesday, May 20th

DÉJEUNER **LUNCHEON**

Salle — River View — Room

Président Dr J. A. Melanson Chairman

Conférencier The Hon. Paul Martin Speaker

Mardi le 20 mai 2.30 p.m. Tuesday, May 20th

SÉANCE GÉNÉRALE **GENERAL SESSION**

Dr A. R. Foley, Président

Salle de Bal — Ball Room

Adresse présidentielle.	DR A. R. FOLEY
Public Health and the Practising Physician Discussion.	DR. WALTER L. BIERRING
Title to be announced. Discussion.	DAME KATHERINE WATT
Service généralisé de l'Infirmière dans un service d'hygiène Publique. Discussion.	DR A. GROULX

Mercredi le 21 mai 9.30 a.m. Wednesday, May 21st

EPIDÉMIOLOGIE **Section** **EPIDEMIOLOGY**

Dr A. R. Foley, Président

Salle de Bal — Ball Room

La mortalité infantile.	DR MARC BERGERON
Dépistage de la tuberculose.	DR SARTO SIROIS
Le B.C.G. à l'Unité Sanitaire.	DR OCTAVE ROY
Immunisation combinée par le D.C.	DR AUBERT LAPERRIERE
L'Hygiène dans la class ouvrière.	DR J. M. TREMBLAY

Mercredi le 21 mai 9.30 a.m. Wednesday, May 21st

STATISTIQUES VITALES Section VITAL STATISTICS

Président—Dr Paul Parrot—Chairman

Salle — Jacques Cartier — Room

SYMPOSIUM ON POPULATION

Facts about the Canadian Population.	MR. H. LUKIN ROBINSON
Population de la Cité de Québec.	M. J. C. FALARDEAU
Population and Mortality.	MR. J. D. B. SCOTT
Discussion.	DR E. A. LEMIEUX DR A. B. VALOIS DR. A. H. SELLERS

Mercredi le 21 mai 9.30 a.m. Wednesday, May 21st

SÉANCE CONJOINTE JOINT MEETING

NUTRITION ET INFIRMIÈRES-HYGIÉNISTES

NUTRITION AND PUBLIC HEALTH NURSING

Présidents—Dr J. E. Sylvestre—Joint Chairmen
Miss Mary J. Ritchie

Salle des Comités — Committee Room

Breakfast.	MISS MARY J. ANGUS
Problème de nutrition pour l'Infirmière Hygiéniste.	MLLE MARIA OLIVIER
The Nutritionist as a Consultant to Public Health Nurses.	MISS YVONNE LOVE
Forum.	MLLE ALINE SEGUIN MLLE MARCELLE GODBOUT

Mercredi le 21 mai 9.30 a.m. Wednesday, May 21st

Section

LUTTE ANTI-VENÉRIÉNNE VENEREAL DISEASE CONTROL

Président—DR. B. D. B. LAYTON—Chairman

Bibliothèque — Library

Aperçu du problème vénérien dans la province de Québec.	DR G. CHOQUETTE
La Pénicilline dans la Syphilis congénitale.	DR JEAN GRANDBOIS
La culture du gonocoque dans un laboratoire d'hygiène publique.	DR M. ST-MARTIN
Séro-diagnostic de la syphilis, ses difficultés, ses différents aspects et ce que la clinique peut en attendre.	DR BENOIT ROUSSEAU
Progress of Venereal Disease Control in Canada.	DR. B. D. B. LAYTON
Problems arising in regard to Pre-Marital Examinations.	DR. H. S. DOYLE

Mercredi le 21 mai 9.30 a.m. Wednesday, May 21st

Section

EDUCATION EN HYGIÈNE PUBLIQUE
PUBLIC HEALTH EDUCATION

Président—DR. STEWART MURRAY—Chairman

Salon bleu — Blue Room

Program to be announced.

Mercredi le 21 mai 9.30 a.m. Wednesday, May 21st

CONFERENCE OF STATE AND PROVINCIAL HEALTH AUTHORITIES OF NORTH AMERICA

Salle — River View — Room

Nutrition in War and Peace. Discussion.	DR. FRANK G. BOUDREAU
Old Age—A Public Health Problem. Discussion.	DR. WINGATE M. JOHNSON
The Indispensable Local Health Department. Discussion.	DR. HAVEN EMERSON

Mercredi le 21 mai 2.30 p.m. Wednesday, May 21st

SÉANCE GÉNÉRALE GENERAL SESSION

DR A. R. FOLEY, Président

Salle de Bal — Ball Room

Expérimentation et recherches pratiques sur le virus grippal. Discussion.	DR PIERRE LEPINE
The University Affiliation with Health Departments for Developmental and Educational Purposes. Discussion.	DR. W. A. McINTOSH
Safeguarding Mental Health in Canada. Discussion.	DR. CLARENCE M. HINCKS
New Health Programs in the United States. Discussion.	DR. THOMAS PARRAN

Mercredi le 21 mai 7.30 p.m. Wednesday, May 21st

DÎNER ET DANSE DINNER AND DANCE

Salle de Bal — Ball Room

DR A. R. FOLEY, Président

Jeudi le 22 mai 9.30 a.m. Thursday, May 22nd

EPIDÉMIOLOGIE Section EPIDEMIOLOGY

DR A. R. FOLEY, Président

Salle de Bal — Ball Room

Epidemiological Problems of Acute Gastro-enteritis in Vancouver.	DR. C. E. DOLMAN DR. L. E. RANTA and MISS MABEL M. MALCOLM
Une épidémie de typhoide.	DR PAUL CLAVEAU
Title to be announced.	DR. N. E. McKINNON
A Cheese-borne Epidemic of Typhoid Fever.	DR. M. G. THOMSON
Title to be announced.	DR. D. T. FRASER
An Epidemic of Paratyphoid A.	MR. REGINALD BOWERING DR. GEORGE ELLIOT and DR. DALEY

Jeudi le 22 mai 9.30 a.m. Thursday, May 22nd

STATISTIQUES VITALES Section VITAL STATISTICS

Président—Dr Paul Parrot—Chairman

Salle — Jacques Cartier — Room

A Consultative Program for Vital Statistics.	DR. A. E. BAILEY

SYMPOSIUM ON VITAL STATISTICS

In Health Units:	
Québec.	DR C. POMERLEAU
Saskatchewan.	DR. C. F. W. HAMES
In Cities:	
Montréal.	DR A. B. VALOIS
Toronto.	MR. T. E. ASHTON
In Provinces:	
To be announced.	
Discussion.	DR. D. V. CURREY DR. J. WYLLIE

Jeudi le 22 mai 9.30 a.m. Thursday, May 22nd

Section
INFIRMIÈRES HYGIÉNISTES
PUBLIC HEALTH NURSING

Président—Miss Mary J. Ritchie—Chairman

Salle des Comités — Committee Room

THE PUBLIC HEALTH NURSE IN THE COMMUNITY HEALTH PROGRAM

Impressions of Public Health Nursing Trends in the State of Maryland.	MISS MURIEL LOWRY
L'éducation populaire de l'infirmière hygiéniste.	MLLE MARIE CHAMARD
The Role of the Victorian Order Nurse in the Community Health Program.	MISS HATTIE EMPEY
The Public Health Nurse in the Rural Health Program.	MISS MURIEL E. HUNTER
Contribution d'une infirmière-visiteuse de la Métropolitan Life Insurance Company dans l'éducation sur la santé.	MLLE G. TESSIER
Discussion.	MLLE A. GIRARD MISS E. A. E. MacLENNAN
Unfinished Business.	

Jeudi le 22 mai 9.30 a.m. Thursday, May 22nd

Section

ADMINISTRATION DE LA SANTÉ PUBLIQUE
PUBLIC HEALTH ADMINISTRATION

Secrétaire—Dr. Morley Elliott—Acting Secretary

Salle — River View — Room

Business Meeting.

Jeudi le 22 mai

LES MEDECINS HYGIENISTES DE QUEBEC

Bibliothèque, 9.30 hrs.

Jeudi le 22 mai 12.30 p.m. Thursday, May 22nd

DÉJEUNER LUNCHEON

Salle — River View — Room

Président—Dr Jean Gregoire—Chairman

Conférencier Dr. G. D. W. Cameron Speaker

Jeudi le 22 mai 2.30 p.m. Thursday, May 22nd

SÉANCE GÉNÉRALE GENERAL SESSION

Dr A. R. Foley, Président

Salle de Bal — Ball Room

Programme d'enseignement d'hygiène Scolaire.	DR JULES GILBERT
Sérum réticulo-endothélial dans l'immunité expérimentale.	DR MAURICE PANISSET
Recent Work on Virus Diseases of Academic and Practical Importance.	DR. C. E. VAN ROOYEN

Resolutions and announcements.

Letter From Great Britain

FRASER BROCKINGTON,
M.R.C.S., Eng.; L.R.C.P., Lond.; D.P.H.; B.Chir., M.D., Camb.
County Medical Officer
Public Health Department, West Riding of Yorkshire
Wakefield, Yorkshire, England

THE world of medicine in Great Britain is passing through one of those uncomfortable periods which every father learns to dread when mother decides to spring-clean the house. The cleaning has been thorough and naturally all the dust which lay harmlessly in nooks and crannies is now in the air. Quite frankly we are not used to such rough treatment over here. We usually have a few Royal Commissions or Consultative Committees who report over a period of twenty-five years and then Parliament makes some slight modification, taking care not to offend any interest. Compromise. Building on what you've got. Evolution and not revolution.

A century ago Macaulay wrote in his history of England "in English legislation the practical element has always predominated, and not seldom unduly predominated, over the speculative. To think nothing of symmetry and much of convenience; never to remove an anomaly merely because it is an anomaly; never to innovate except when some grievance is felt; never to innovate except so far as to get rid of a grievance; never to lay down any proposition of wider extent than the particular case for which it is necessary to provide; these are the rules which have, from the age of John to the age of Victoria, generally guided the deliberations of our 250 Parliaments". And one might add, so continued to do to the reign of King George VI. Are we now thinking too much of symmetry, removing harmless anomalies, innovating unwisely, and making wider propositions than the case demands, or are we at last being truly progressive by allowing the speculative element to predominate over the practical? Only time now can show into what category will fall the National Health Service Act which apepared on the Statute Book in October, 1946. Macaulay, had he lived today, would be critical.

The National Health Service Act transfers to the Minister of Health on the 1st April, 1948, the ownership of all hospitals, voluntary and municipal, sanatoria with tuberculosis dispensaries, maternity homes and mental-deficiency institutions. The organisation and administration of these, together with the specialist and other staffs, is to be carried out by sixteen Regional Hospitals Boards, with local management committees, for day-to-day administration, of groups of institutions in prescribed areas. So far no indication has been given of the constitution of the Regional Boards but rumour has it that there will be from twenty to thirty members, about a quarter to be chosen from the members of existing County and County Borough Councils, a quarter from persons with voluntary hospital experience, presumably as members of governing bodies, and therefore up to half will be from professional men and women practising in medicine and allied arts, university staffs, specialists and general medical and other practitioners. There may be some truth in the parody of an ancient slogan that this is a rule by the doctors for the doctors. Certainly it is a great departure from forms of government hitherto adopted in this country, particularly as the members of the board will not be "elected" but "selected" by

the Ministers. Some indeed believe that this is a serious encroachment on the democratic principle that 'he who pays the piper calls the tune', which requires that the expenditure of public moneys shall be in the hands of elected representatives of the people.

The set-back to Local Government by elected representatives, as seen in County and County Borough Councils, arose from the dislike of any form of bureaucratic control, which all doctors in England have much at heart. At the outset of the campaign for a National Health Service, which followed upon the Beveridge proposals for social security, the British Medical Association declared emphatically that it would not accept any form of administration which placed doctors under existing local government bodies. When the present government came to power, the new Minister of Health, Mr. Aneurin Bevan, found this conformed to the government's general plans for nationalisation. One effect of nationalisation of hospitals and allied institutions without similar treatment of preventive medicine, whatever else it may carry of good or evil, will be the separation of curative from preventive medicine.

Those who believe in large-scale planning are optimistic and see in this step a long-awaited reform with general improvement in hospital standards, including specialist staffing and equipment, and with rationalisation of treatment facilities and the establishment of special hospitals of all types in all parts of the country. Gone, they say, will be the 'laissez faire' attitude of individualist hospitals which resulted in wide differences of standards, duplication of activities and large bald patches of territory with no adequate special hospitals and often no hospitals at all. Those, on the other hand, who have had experience of large organisations, and the deadening effect of hierarchical control, are wondering whether the wonderful spirit which has grown up and around our present hospital system may not fade and die away. The Act slays with one blow the autonomy, exercised by boards of governors and municipal councils, in thousands of hospitals up and down the country, where for varying periods of time, often very long, there has been lavished the loving care of parent for its child. Will the state, these sceptics wistfully wonder, be so loving? Why be so drastic? Why not legislate for standards and co-ordination without removing the ownership to the State? But the time has gone by now for such nostalgia; the Act is on the Statute Book and the day of execution fixed.

The work of the general practitioner is also regulated under the Act. Executive councils are to be established, not in regions, but in the area of each County and County Borough. This council is to consist of a chairman appointed by the Minister, and twenty-four other members of whom eight shall be appointed by the local health authority, four by the Minister, seven by the Local Medical Committee, three by the Local Dental Committee and two by the Local Pharmaceutical Committee.

If the Minister is satisfied that a local committee is representative of the medical practitioners in the area of an Executive Council, it will be recognised by him as the Local Medical Committee. Similar provisions apply to pharmacists and dental practitioners in respect of their Local Committees.

The chief function of the Executive Council is to enter into contract with general medical practitioners, pharmacists and dental practitioners for the provision of general medical, pharmaceutical and general dental services. These services are to be available for all persons in the area who wish to take advantage of the arrangements, whether at a health centre or otherwise, and will be in accordance with regulations still to be made.

The Executive Council is also empowered to make arrangements for supplementary ophthalmic services until such time as the Hospital and Specialist services are able to give a complete service. These services will embrace sight-testing and the provision

of optical appliances by medical practitioners with the necessary qualifications, ophthalmic opticians and dispensing opticians.

There are certain features of the Act with which general medical practitioners as a class do not agree. During the early discussions leading up to the National Health Service Act they hoped that all classes of the community would not be included; in other words, that the national service would apply only to persons below a certain income limit. The Act, however, makes everyone pay the same contribution whether they wish to use it or not, and the practitioners feel that although at first a number of persons will not use the national service, this will be a gradually diminishing number until a time will come when there will be little or no private practice.

Another point of difference is in relation to the sale of the goodwill of a practice. This will be unlawful in the case of any medical practitioner who has entered into contract to provide general medical services, and the Act further makes provision debarring a practitioner from evading the regulations by means of valuable gifts or by giving services at a reduced rate or remuneration. Compensation for this loss of right to sell medical practices will be paid at a time and in a manner to be provided by Regulations yet to be made.

The practitioners also object to what is called "negative direction". By this is meant the power to prohibit a medical practitioner working under the scheme in an area which is considered to be "over-doctored". Application to work in an area will be made to the Executive Council of that area who will refer it to the Medical Practices Committee for consideration. This committee will consist of a medical chairman and eight other members, of whom six shall be medical practitioners; five of these six must be in active medical practice. An aggrieved practitioner has the right of appeal to the Minister. It is the principle to which objection is taken, for many feel that in actual practice where the Local Medical Committee is consulted there will be little cause for grievance.

There is a penal clause in the Act which constitutes a Tribunal to inquire into cases where representation has been made that the continued inclusion of a medical practitioner is prejudicial to the efficiency of the service. Where the Tribunal direct that the name of a practitioner be removed, he has the right of appeal to the Minister but many practitioners feel that the right of appeal should be to the Law Courts.

One final point of difference is in regard to the form of remuneration. The profession would prefer that this should be on a capitation basis but the Minister has insisted that it should be partly by basic salary and partly by capitation fees and that the basic salary will be generally a small portion. The profession is not satisfied with this assurance as it feels that in time the basic salary will grow in proportion, until medical practitioners become in effect whole-time salaried servants of the State.

The Act also makes important, but less sensational, changes in the preventive medical services which remain with local authorities. Some mention of this was made in my last letter. County Councils and County Borough Councils are in future to be called "Local Health Authorities" and each such authority must appoint a statutory health committee, which may be vested with all powers of the local health authority except those of borrowing money or levying a rate, and to this committee must stand referred all matters relating to the discharge of the functions of a "local health authority". The duty of making arrangements for the following services are prescribed:

(1) For the care of mothers and young children.
(2) For providing and supervising a midwifery service.
(3) For a health visiting service—for the purpose of giving advice as to the care of young children, per-

sons suffering from illness, and expectant nursing mothers, and as to the measures necessary to prevent the spread of infection.

(4) For a home nursing service—for securing the attendance of nurses on persons who require nursing in their own homes.

(5) For an ambulance service "for the conveyance of persons suffering from illness, mental defectiveness, expectant or nursing mothers".

(6) For vaccination against smallpox, immunization against diphtheria or, with the approval of the Minister, against any other disease.

(7) To provide, equip and maintain to the satisfaction of the Minister premises which shall be called "health centres", at which facilities shall be available for all or any of the following purposes—general medical and dental practitioners, pharmaceutical services, specialist medical services, and clinics or other services which local authorities provide, including lectures and other facilities for health education.

(8) For the prevention of illness, care and after-care of sickness.

(9) For a home-helps service* "for providing domestic help for households where such help is required owing to the presence of any person who is ill, lying-in, and expectant mother, mentally defective, aged or a child. . . ."

None of these services is entirely new and most have been available in one form or another for years. What, generally speaking, is new is the placing of responsibility on the local health authority and in many cases the removal from smaller local authorities (e.g. urban and rural districts). Health visitors have been employed in England for half a century, with gradually extending duties. They began with the home visiting of infants and infant welfare centres; duties in the school health and tuberculosis services followed. Now the intention is to extend their work to cover the whole community outside hospital. This may prove to be the greatest advance in social medicine in this century. The duty of providing a home nursing service is new, as this previously rested entirely with voluntary nursing associations subsisting mainly on the twopence a week collections from contributors and any grants available from local authorities. The health centre for general medical and dental practitioners is a new idea, presumably to replace a hotch-potch of existing surgery arrangements, often in the practitioner's own home; but there is as yet little reliable information of what form such centres are to take, what size they are to be, what areas they will cover, and we are still not at all clear to what extent the health centre will be combined with the preventive medical and dental clinics, the infant welfare centre, ante- and post-natal clinics and the various clinics established for the school health service. It is somewhat strange to legislate for something we don't fully understand. A service of home helps for maternity has been for many years optional for all maternity and child welfare authorities. The new Act extends the power to organize home-helps schemes to include all sickness but does not lay a duty, no doubt largely because most authorities who have arranged this have found many difficulties. Authorities have been permitted to run ambulances in the past but have restricted their use mainly to accidents and left to voluntary agencies, including hospitals, the provision for other purposes. The new duty should ensure a complete service which is fundamental to any comprehensive health organization. The duty for vaccination against smallpox is a radical change. The Vaccination Acts of compulsory vaccination (with their provision for exemption on conscientious grounds) are repealed and health authorities must make arrangements similar to those which have been long in operation for diphtheria and at the same time authorities must make arrangements for diphtheria, whereas in the past it was optional.

Much more could be written but time and space do not permit.

**This is a permissive function.*

SANITARY INSPECTION

INSPECTION OF FUNERAL HOMES

J. R. ELLEY, C.S.I. (C.)
Sanitary Inspector
Elgin—St. Thomas Health Unit
St. Thomas, Ontario

FUNERAL DIRECTORS are now applying for their new licences and are requesting the local boards of health for approval of their premises. We are primarily concerned with the establishments in rural districts, where little or no inspection services were provided before the advent of the health unit. Although the fact that no inspections were made is contrary to the regulations concerning the licensing of funeral directors, we found that in our district certificates of approval had often been signed without any inspection or knowledge of the sanitary condition of the applicant's establishment.

The regulations under the Embalmer's and Funeral Director's Act (R.S.O. 1937, Chap. 242) read:

"Section 15—(1). A license as a funeral director shall be issued to a licensed embalmer whose premises, accommodation and equipment have been approved by the local board of health, and whose furnishings, premises and equipment have been approved by the Board.

"Section 16—(1). Every applicant for a funeral director's license shall furnish with his application a certificate of the local board of health on a form approved by the Board certifying that his premises, accommodation and equipment have been inspected by an officer of the board of health and approved by it as sufficient to enable him to conduct his business in a sanitary manner."

The responsibility for making his inspection is usually alloted to the sanitary inspector, and this may be the only contact made with that well-known and usually esteemed member of any community, the funeral director. This duty, then, gives the inspector not only the opportunity of inspecting the establishment but also of spreading the gospel of public health. There is no hard-and-fast rule regarding the equipment or the manner in which the director carries on his business, but his equipment and procedures should conform to good sanitary practice.

We believe that, in order to do this, certain important rules must be observed. The embalming or preparation room should be situated so that good lighting and ventilation are available and yet not in such a place that privacy cannot be maintained. Floors should be well drained and easily cleaned. The walls should be of an impervious material capable of being easily cleaned and preferably painted white. Equipment should be such that cleaning is facilitated, not only of the equipment but also of the room itself. The preparation tables, intravenous and embalming equipment and all other equipment used should be cleaned immediately after use and kept clean. Unclean or corroded needles, trocars and other instruments are an indication of carelessness and often of laziness on the part of the operator. There should be adequate shelving,

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This article is submitted as the experience and view of an inspector working in a health unit set-up and is not to be construed as authorization or interpreted as the view of the Department of Health.

preferably covered, for instruments and fluids. It is very important that there be an abundance of hot and cold water for the personal cleanliness of the operator and also for general cleaning in the room. All openings such as vents and windows should be screened to exclude flies during the summer months.

The method of disposal of body wastes and drainage is of importance. These present no problem where a modern sewerage system is available, but in rural districts this is not the case and other methods must be resorted to. There have been cases of these wastes being thrown indiscriminately on to ash and rubbish piles open to flies, dogs, and the searching fingers of children. It is therefore important to see that these body wastes and drainage from the preparation room are handled in a sanitary manner. Often these wastes must be buried, and in rural districts this is the preferable method. Drainage and wash water should be disposed of by using a disposal bed similar to that employed for septic-tank installations. In some cases this drainage may be handled efficiently by a septic tank and its disposal system. All drains should be adequately trapped. The importance of the proper methods for disposal of these wastes must be stressed and the inspector should be able to answer intelligently any questions concerning this and be able to advise on the correct methods to use.

In every funeral home there should be adequate sanitary conveniences for the use of those attending funerals. These should, of course, conform with existing by-laws (if any) of the community, and should be maintained in a sanitary manner. All plumbing in the establishment should be satisfactory to the inspector.

We in our health unit have found that when the funeral director is told about defects in his methods and when methods conforming to good sanitary practice are explained to him, he is willing to co-operate to the fullest extent. It has been our pleasure to see, in our district, many changes made in funeral homes, and we are satisfied that we have made a definite advance in bringing these homes to a higher level of sanitation.

CORRESPONDENCE

To the Editor:

One of the cases appearing in last summer's poliomyelitis epidemic in this province seems to be sufficiently unusual to warrant publication and suggests a problem worthy of investigation.

A full-blooded Indian girl, sixteen years of age, developed acute poliomyelitis. Six months later she still had some residual paralysis. As the reserve on which she resides is close to an area of white population which was very heavily hit by this epidemic and as she was seen by several doctors while in the Edmonton Isolation Hospital, the diagnosis would appear accurate.

This seems to be the first recorded case of poliomyelitis in an Indian in Alberta. I am informed that it probably is the first case in an Indian in Canada.

The local Indian agent informs me that the girl's family lives in a tent with the worst sanitary conditions. They eat the usual Indian food, and are much less "white" than many other residents of that reservation. This is suggestive evidence for the controversy over flies and human excreta as sources of poliomyelitis infection.

About six weeks after the onset of illness, a sample of blood was sent to the Research Laboratory of the Health of Animals Branch at Hull and was reported negative for equine encephalitis antibodies. No encephalitis was reported in human beings or horses from near that community during the summer.

I have checked with all of the orthopaedic surgeons in the province and they inform me that they have never seen a pure-blooded Indian who showed the after-results of poliomyelitis. These facts would suggest that Indians are relatively immune to this disease either through heredity or through something in their environment.

A. SOMERVILLE, M.D.,
Department of Public Health,
Edmonton, Alberta.